

**DISCIPLINE SPECIFIC ELECTIVE COURSE – 5 (DSE-5): EDUCATION AND TECHNOLOGY**

**Credit distribution, Eligibility and Prerequisites of the Course**

| Course title & Code              | Credits | Credit distribution of the course |          |                     | Eligibility criteria         | Pre-requisite of the course (if any) |
|----------------------------------|---------|-----------------------------------|----------|---------------------|------------------------------|--------------------------------------|
|                                  |         | Lecture                           | Tutorial | Practical/ practice |                              |                                      |
| Education and Technology (DSE 5) | 4       | 3                                 | 1        | 0                   | Class XII <sup>th</sup> pass | NIL                                  |

**Learning Objectives**

The Learning Objectives of this course are as follows:

1. Learners will develop the concept of ICT.
2. Learners will explain the need and importance of Open Educational Resources as a part of ICT.
3. Learners will explore the status of ICT in NEP 2020.
4. Learners will critically analyse the use of Artificial Intelligence in education.

**Learning outcomes**

After completion of the course student will be able to:

1. draw picture of evolution of ICT.
2. explore Open Educational Resources from the internet.
3. develop concept maps to correlate ICT and NEP 2020.
4. develop a write-up using Artificial Intelligence.

**Total Hours: 45 hours**

**Unit I: Information and Communication Technologies (15 hours)**

- Informational technology (IT), Communication technology (CT)
- Information and communication technology (ICT) as a combination of IT and CT
- ICT in education, Digital devices and software for educational purposes

**Unit II: Open Educational Resources (10 hours)**

- Concept and need of OER
- Creative Commons Licenses, OER repositories
- Identifying OER while searching the browser for images, checking license while browsing content

**Unit III: ICT and Educational Policy (10 hours)**

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- ICT and NEP 2020
- NEP 2020 and ICT for Students
- Preparing teachers through ICT for NEP 2020

#### Unit IV: Artificial Intelligence in Education

(10 hours)

- Concept and types of AI
- Need, importance and ethical concerns of AI in education
- AI for content writing, AI for translation, AI for question writing for evaluation

#### Practicum/ Suggested Projects / Assignments (Any Two)

1. Explore and present one digital tool (software or device) used in education and develop a presentation (slides/video) covering features, applications, and a short demo.
2. Find and curate 5 OERs (videos, images, articles) relevant to a subject of their choice, ensuring proper licensing and develop a digital repository (Google Drive, Padlet, or website) with proper attribution and a report on the sources.
3. Use an AI tool (ChatGPT, Google Bard, or another AI) to generate content such as lesson plans, quizzes, or summaries and develop a comparison report between AI-generated and manually created content, highlighting pros and cons.
4. Design a lesson plan incorporating ICT tool/s and OER resources for an engaging learning experience and develop a detailed lesson plan including digital tools, OERs, and expected learning outcomes.
5. Use an AI-based chatbot platform (Dialogflow, ChatGPT, or Botpress) to create a simple educational chatbot for answering FAQs on a chosen subject and develop a functional chatbot demo and a short reflective report on its usability in education.

**Note:** On the basis of the above, the teacher may design his/her own relevant projects/ assignments.

#### Essential/ Recommended Readings

- Butcher, N. (2015). *A basic guide to open educational resources (OER)*. Vancouver: UNESCO and COL.
- Chowdhury, R.R. & Haque, L. (2024). Information and Communication Technology (ICT) in School Education Recommended in National Education Policy (NEP 2020): Major Issues and Challenges. [https://www.academia.edu/download/116297293/IJSHMS\\_V2I1P106.pdf](https://www.academia.edu/download/116297293/IJSHMS_V2I1P106.pdf)
- Cukurova, M (2025). The interplay of learning, analytics and artificial intelligence in education: A vision for hybrid intelligence. *British Journal of Educational Technology*, Wiley Online Library, <https://doi.org/10.1111/bjet.13514>
- D'Antoni, S. & Savage, C. (Eds) (2009). *Open educational resources: Conversations in cyberspace*. New York: United Nations Educational, Scientific and Cultural Organization.
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- IGNOU. Open educational resources. <https://egyankosh.ac.in/bitstream/123456789/46306/1/Unit-7.pdf>
- Kanvaria, V.K. (2014). *A comprehension on educational technology and ICT for education*. GBO: Delhi.
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- Kanvaria, V.K. (2021). Digitalization in education: A shift in learning, teaching and pedagogue-development. In S. Pal, T.Q. Cuong, & R.S.S. Nehru (Eds.) *Digital education pedagogy: Principles and paradigms* (23-48). USA: Apple Academic Press (Taylor and Francis Group).
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- Mao, J, Chen, B, & Liu, JC (2024). Generative artificial intelligence in education and its implications for assessment. *TechTrends*, Springer, <https://doi.org/10.1007/s11528-023-00911-4>
- Roblyer, M.D. (2007). *Integrating educational technology into teaching, (ed 4)*. Delhi: Pearson Education India.

### Additional Readings

- Apple, M. (1995): *Education and power*. New York: Routledge.
- Barron, A.E., Orwig, G.W., Ivers, K.S. & Lilavois, N. (2002). *Technologies for education: A practical guide, reference sources in science and technology series, (ed 4)*. New York: Libraries Unlimited.
- Cheng, I., Safont, L.V. & Basu, A. (2009). *Multimedia in education: Adaptive learning and testing*. New Jersey: World Scientific Pub Co Inc.
- Collins, J., Hammond, M. & Wellington, J.J. (1997). *Teaching and learning with multimedia*. London: Routledge.
- Ehlers, U.D. & Schneckenberg, D. (Eds) (2010). *Changing cultures in higher education: Moving ahead to future learning*. London: Springer.
- Goswamy, B.P. (2006). *Shaikshik takniki evam kaksha-kaksh prabandh*. Delhi: Swati Publication.
- Jonassen, D.H. (Ed) (2003). *Learning to solve problems with technology: A constructivist perspective, (ed 2)*. California: Merrill.
- Joyce, B.R., Weil, M. & Calhoun, E. (2009). *Models of teaching, alternative e-text formats series, (ed 8)*. Boston: Pearson/Allyn and Bacon Publishers.

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- Kanvaria, V.K. & Kukreja, D. (2018). Educational cyberspace: The prospects for higher education in India. In S.K. Panda (Ed.) Higher education in India: Opportunities and challenges (150-163). Delhi: Ankit Publications.
- Kanvaria, V.K. & Suraj, M.T. (2023). Education and HR management in the age of artificial intelligence: An overview of available tools. In S. Lodha, N. Joshi & S. Gaikwad (Eds.) Emerging technologies in business management (220-229). New Delhi: Bloomsbury Publishing.
- Kanvaria, V.K. & Yadav, A. (2023). Augmented reality: Prospects for environmental science education. In C.Y. Patil, N.V. Mahale & S.M. Ingole (Eds.) Recent trends in humanities, social sciences, sciences and commerce, vol 1 (65-67). Pune: Jyotikiran Publication.
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- Kanvaria, V.K. & Yadav, A. (2023). Revolutionizing education in India through digital initiatives: Trends and future possibilities. European Chemical Bulletin (Scopus).
- Kanvaria, V.K. (2023). Digital learning and teaching: An innovative strategy for quality learning. In B. N. Panda (Ed.) Digital learning: An innovative strategy for quality learning. Bhubaneswar: RIE (NCERT).
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- Cole, M., Cole, S.R., & Lightfoot, C. (2004). The Development of Children (6th ed.). New York: Worth Publishers (Chapter 12 pp 429-443)
- Holt, J (1974). Escape from Childhood. Boston: E. P. Dutton. (Chapter 1, 2 and 7)



**Audio Visual Material: Across Units (If any)**

1. ICT in Education (Link: <https://www.youtube.com/watch?v=MxVQzAtV848>)
2. UNESCO Recognition for Use of ICT (Link: [https://www.youtube.com/watch?v=sB\\_x6TR4h6w](https://www.youtube.com/watch?v=sB_x6TR4h6w))
3. Use of ICT and AI in Schools (Link: <https://www.youtube.com/watch?v=FnBZBxl3EPk>)
4. OER (Link: <https://www.youtube.com/watch?v=RNy1YiXmB4s>)
5. Licensing Your Work with Creative Commons License (Link: <https://www.youtube.com/watch?v=FXWLd2f4ICE>)
6. Is AI Reshaping Education for the Better? (Link: <https://www.youtube.com/watch?v=EEbGYRW7feM>)
7. How AI is Changing Education (Link: <https://www.youtube.com/watch?v=3sHiNTJ9Qsg>)
8. UNESCO Website, NCERT Website, MoE Website, UGC Website, NCTE Website

**Teaching Learning Process:**

The course will be taught through interactive pedagogic methods such as classroom discussion, debates, film discussions, critical media analysis, collaborative learning tasks which enhance reading comprehension of core writings in the area and innovative projects. Reflective expression and learning will be encouraged through exploration.

**Assessment Method**

The assessment will be formative in nature and will factor in student participation. Individual and group tasks and assignments will be given. Summative evaluation will be done through end-semester examination.

**Key words:** ICT, ICT in Education, OER, Creative Commons, NEP 2020, AI, AI in Education

**Note:** Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

  
