

NEP - 2020 and Learning Outcome-Based Curriculum Framework (LOCF)

FOR

Post Graduate Diploma Programme

**POST GRADUATE DIPLOMA IN ICT AND ARTIFICIAL
INTELLIGENCE IN EDUCATION (PGD-ICTAIE)**

(To be effective from the Academic Session 2026-27)



DEPARTMENT OF EDUCATION

GURUGRAM UNIVERSITY, GURUGRAM

(A State university Established by Govt. of Haryana Act no. 17 in 2017)

Scheme of Programme

POST GRADUATE DIPLOMA IN ICT AND ARTIFICIAL INTELLIGENCE IN EDUCATION (PGD-ICTAIE)

SEMESTER 1

Course Code	Course Title	Course ID	L	T	P	L	T	P	Total Credits	MARKS				
			(Hrs)				Credits			TI	TE	PI	PE	Total
	Core Course(s)													
CC-A01	Foundations of ICT and Artificial Intelligence in Education	261/PGD ICTAIE/CC101	3	1	0	3	1	0	4	30	70	-	-	100
CC-A02	AI-Based Instructional Design and Adaptive Content Development	261/PGD ICTAIE/CC102	3	1	0	3	1	0	4	30	70	-	-	100
	Discipline Specific Elective Courses													
DSE-01	AI-Enabled Teaching, Learning, and Assessment	261/PGD CTAIE/D S103	3	0	0	3	0	0	3	25	50	-	-	75
	OR	OR												
	Educational Data Mining and Learning Analytics	261/PGD CTAIE/D S104												
	Course(s)													

SEC-01	Learning management system and MOOCs Development	261/PGD ICTAIE/ SE101	1	0	2	1	0	1	2	5	20	5	20	50
	Ability Enhancement Course(s)													
AEC-01	Academic Communication, Critical Thinking in the Digital Age	261/PGD ICTAIE/ AE101	2	0	0	2	0	0	2	15	35	-	-	50
	Value-added Course(s)													
VAC-01	Digital Ethics, Cyber Security & Data Privacy	261/PGD ICTAIE/ VA101	2	0	0	2	0	0	2	15	35	-	-	50
SEMINAR		261/PGD ICTAIE/ SEM101							02					50
Total Credits									19					475

SEMESTER 2

Course Code	Course Title	Course ID	L	T	P	L	T	P	Total Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
			Core Course(s)											
CC-A03	AI-Powered Pedagogies and Emerging Educational Technologies	261/PGDIC TAIE/CC201	3	1	0	3	1	0	4	30	70	-	-	100
CC-A04	AI in Educational Policy, Leadership and Governance	261/PGDIC TAIE/CC202	3	1	0	3	1	0	4	30	70	-	-	100

Discipline Specific Elective Courses														
DSE-02	AI for Personalized and Inclusive Learning OR AI-responsive critical digital pedagogy	261/PGDIC TAIE/DS203 OR 261/PGDIC TAIE/DS204	3	0	0	3	0	0	3	25	50	-	-	75
Skill Enhancement Course(s)														
SEC-02	Advanced Digital and AI Tools for Education	261/PGDIC TAIE/SE 202	1	0	2	1	0	1	2	5	20	5	20	50
AEC-02	Open Educational Resources and AI-Enabled Decision-Making in Education	261/PGDICT AIE/AE202	2	0	0	2	0	0	2	15	35	-	-	50
Internship/Field Activity														
INTERN-02	Internship and Project Work	261/PGDICT AIE/IN201	0	0	8	0	0	4	4	-	-	30	70	100
Total Credits									19	-	-	-	-	475

Skill Enhancement Course from the Department

SEMESTER 1

Course Code	Course Title	Course ID	L	T	P	L	T	P	Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
SEC-01	Learning management system and MOOCs Development	261/PGDICTAIE/SE101	1	0	2	1	0	1	2	5	20	5	20	50

SEMESTER 2

Course Code	Course Title	Course ID	L	T	P	L	T	P	Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
SEC-02	Advanced Digital and AI Tools for Education	261/PGDICTAIE/SE202	1	0	2	1	0	1	2	5	20	5	20	50

Ability Enhancement Course from the Department

SEMESTER 1

Course Code	Course Title	Course ID	L	T	P	L	T	P	Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
AEC-01	Academic Communication, Critical Thinking in the Digital Age	261/PGD-ICTAIE/AE101	2	0	0	2	0	0	2	15	35	-	-	50

SEMESTER 2

Course Code	Course Title	Course ID	L	T	P	L	T	P	Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
AEC-02	Open Educational Resources and AI-Enabled Decision-Making in Education	261/PGD-ICTAIE/AE202	2	0	0	2	0	0	2	15	35	-	-	50

Value Added Course from the department

SEMESTER- 1

Course Code	Course Title	Course ID	L	T	P	L	T	P	Credits	MARKS				
			(Hrs)			Credits				TI	TE	PI	PE	Total
VAC-01	Digital Ethics, Cyber Security & Data Privacy	261/PGDICTAIE/VA101	2	0	0	2	0	0	2	15	35	-	-	50

Nature of Work	Course Credits	Contact hours per week	Contact hours per semester (15 weeks)
Lecture	01	01	15
Tutorial per paper	01	01	15
Practical, Seminar, Internship, field practice/project, or community engagement, etc.	01	02	30

Note: Tutorial batch size (UG programme: 20-25, PG Programme: 12-15)

The distribution of credits among the lectures/tutorial/practicum will be as follows:

Courses	Total Credits	L (Credits)	T (Credits)	P (Credits)	MARKS			
					TI	TE	PI	PE
Only Theory	4	3 (3 hrs)	1	-	30	70	-	-
	3	2 (2 hrs)	1	-	25	50	-	-
	2	1	1	-	15	35	-	-
Theory and Practicum	4	3 (3 hrs)	-	1 (2 hrs)	25	50	5	20
	4 (Where pract. is dominant)	2 (2 hrs)	-	2 (4 hrs)	15	35	15	35
	3	2 (2 hrs)	-	1 (2 hrs)	15	35	5	20
	2	1	-	1 (2 hrs)	5	20	5	20
When Practicum is separate course	2	-	-	2 (4 hrs)	-	-	15	35
	3	-	-	3 (6 hrs)	-	-	25	50
	4	-	-	4 (8 hrs)	-	-	30	70
AEC/VAC	2	2 (2 hrs)			15	35	-	-
SEC	3	2 (2 hrs)		1 (2 hrs)	15	35	5	20
	2	1		1 (2 hrs)	5	20	5	20
DSEC	4	3 (3 hrs)		1 (2 hrs)	25	50	5	20
Minor/VOC	4	2 (2 hrs)		2 (4 hrs)	15	35	15	35
Internship	4	--	--	4 (8 hrs)			30	70

L= Lecture; T= Tutorial, P= Practicum; Ti= Theory Internal Assessment; TE= Theory End Semester Examination; PI= Practicum Internal; PE= Practicum End Semester examination

3. PROGRAMME OBJECTIVES (POs)

PO Code	Objective
PO1	Apply the key recommendations of the National Education Policy (NEP) 2020 regarding the use of technology for teaching, learning, and assessment in Indian educational institutions.
PO2	Develop proficiency in using ICT tools and artificial intelligence applications to personalise and enhance learning experiences for diverse learners.
PO3	Design data-informed pedagogical interventions using learning analytics and AI-based insights.
PO4	Promote ethical, inclusive, and equitable use of technology in diverse Indian educational contexts, including rural, urban, and special education settings.
PO5	Evaluate and implement emerging technologies in curriculum design and instructional delivery.

4. PROGRAMME LEARNING OUTCOMES (PLOs)

PLO Code	Description	Bloom's Level
PLO1	Demonstrate advanced understanding of ICT and AI frameworks (UNESCO, NCERT, NEP 2020) for educational transformation.	Apply
PLO2	Design and deliver AI-integrated, learner-centric lesson plans and assessments.	Create
PLO3	Utilise learning analytics tools to interpret student data and make pedagogical decisions.	Apply
PLO4	Develop inclusive and accessible digital content for diverse learners, including Children with Special Needs (CWSN) and multilingual classrooms.	Create
PLO5	Critically evaluate ethical issues, including bias, privacy, and the digital divide, in educational AI deployment.	Evaluate
PLO6	Execute a mini research project or develop a prototype ICT/AI solution for a real educational problem.	Create

SEMESTER- 1

Course Code: CCA01

Course Title: Foundations of ICT and Artificial Intelligence in Education

Course ID: 261/PGDICTAIE/CC101

Credit- 4

Maximum Marks:100

Theory:70

Internal Assessment: 30

Exam Time: 3hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Define the basic concepts, characteristics, and components of ICT and Artificial Intelligence.	Remember
CO2	Explain ICT tools, AI technologies, and digital learning platforms used in education.	Understand
CO3	Use ICT and AI applications in teaching-learning and assessment processes.	Apply
CO4	Analyze the benefits, challenges, and applications of ICT and AI in education.	Analyze
CO5	Evaluate emerging trends, ethical issues, and future scope of ICT and AI in education.	Evaluate

Note:

1. A total of nine questions shall be set in the question paper.
2. Question No. 1 will be compulsory and shall consist of 7 short answer type questions, each carrying 2 marks, covering the entire syllabus. ($7 \times 2 = 14$ marks)
3. The remaining eight questions shall be divided into four units, with two questions from each unit.
4. Students will be required to attempt one question from each unit. ($4 \times 14 = 56$ marks)

Unit 1: Foundations of ICT in Education

1.1 Meaning and Concept of ICT: Definition, nature, characteristics, components, and significance of ICT in education.

1.2 Evolution of ICT in Education: Traditional teaching methods, audio-visual education, computer-assisted learning, e-learning, blended learning, and digital education.

1.3 Basic ICT Tools and Resources: Computers, internet, multimedia, smart devices, interactive boards, and educational software.

1.4 Role of ICT in Education: ICT in teaching-learning, communication, collaboration, educational administration, and access to learning resources.

Unit 2: Foundations of Artificial Intelligence in Education

2.1 Meaning and Concept of Artificial Intelligence: Definition, characteristics, scope, and significance of Artificial Intelligence in education.

2.2 Evolution and Types of Artificial Intelligence: Historical development of AI; Narrow AI, General AI, and Super AI.

2.3 Basic Concepts Related to AI: Introduction to data, algorithms, Machine Learning, Deep Learning, and Natural Language Processing (NLP).

2.4 Introduction to Generative AI: Meaning, features, educational applications, opportunities, and limitations of Generative AI.

Unit 3: ICT and AI Applications in Educational Practices

3.1 ICT and AI in Classroom Practices: Use of ICT and AI for classroom interaction, content delivery, learner engagement, and communication.

3.2 Digital Learning Ecosystem: Virtual learning environments, online learning platforms, digital educational resources, and open learning systems.

3.3 ICT and AI for Educational Support: Basic applications in assessment, feedback, learner support, and academic management.

3.4 Opportunities and Challenges of ICT and AI in Education: : Benefits, limitations, ethical concerns, accessibility issues, and challenges in educational integration.

Unit 4: Emerging Trends and Responsible Use of ICT and AI

4.1 Emerging Trends in Educational Technology: Introduction to emerging technologies and innovation in education.

4.2 National and Global Digital Learning Initiatives: DIKSHA, SWAYAM, MOOCs, and other digital learning initiatives.

4.3 Contemporary AI Applications in Education: Educational chatbots, intelligent tutoring systems, and AI-assisted educational tools.

4.4 Safe, Ethical, and Responsible Use of Technology: Digital citizenship, cyber safety, privacy, ethics, and responsible use of ICT and AI.

4.5 Future Perspectives of ICT and AI in Education: Future possibilities, opportunities, and evolving role of ICT and AI in educational transformation.

Suggested Assignments and Activities

1. Preparation of a presentation on the evolution and importance of ICT in education.
2. Hands-on exploration of ICT tools such as multimedia, educational software, and digital learning platforms.
3. Identification and demonstration of AI features in educational applications and chatbots.
4. Preparation of a short report on applications of Artificial Intelligence in education.

5. Group discussion on benefits and challenges of ICT and AI integration in teaching-learning.
6. Hands-on activity using online assessment or quiz platforms for digital evaluation.
7. Seminar or presentation on emerging trends and future scope of ICT and AI in education.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Demonstration-based teaching of ICT and AI tools.
3. Hands-on activities and practical exploration of digital platforms.
4. Case study and activity-based learning.
5. Group discussions, seminars, and presentations.
6. Blended learning using online and offline teaching methods.
7. Guided exploration of educational applications and e-learning platforms.
8. Collaborative learning and project-based activities.

Core Readings

1. Ministry of Education. (2020). *National Education Policy 2020*. Government of India.
2. NCERT. (2021). *ICT in schools: Curriculum and pedagogy*. NCERT.
3. NITI Aayog. (2021). *India's AI strategy for education: #AIforAll*. Government of India.
4. UNESCO. (2019). *Artificial intelligence in education: Challenges and opportunities*. UNESCO Publishing.
5. Ives, K. S., Cini, M., & Schroeder, R. (Eds.). (2026). *AI Applications in Online Higher Education Administration: Strategies for Maximizing Returns and Improving Outcomes*. Taylor & Francis.
6. Al Issa, H. E., & Maheshwari, G. (2026). Shaping the future of education: a cluster analysis of generative AI's transformative impact. *Interactive Technology and Smart Education*, 23(1), 113-165.
7. Longhart, C., & Rana, S. (2024). Breaking the Ice in AI Higher Education. *Purdue GlobalVillage*. <https://sites.google.com/purdueglobal.edu/purdueglobalvillage/recordings>

Advance Readings

1. Umfreville, C., & Dodd, R. (2026, January). Enhancing Digital Literacy, Inclusivity, and Employability Skills through Digital Tools (including AI) in Higher Education. In *Future Facing Learning Conference*. ScienceOpen
2. Shin, M., Deniz, F., Watson, L., Dieterich, C., Ewoldt, K. B., Johnson, F., ... & Whitehurst, A. (2026). Addressing the Void of AI Policies in Education for Students With Specific Learning Disabilities. *Learning Disability Quarterly*, 07319487251412879.
3. Mohammadi, A. (2026). New AI technology integration for industry-university cooperation. *Journal of Comprehensive Business Administration Research*, 3(1), 10-18.
4. Assaf, M. (2026). The transformative power of technology: Key innovations and trends in education and learning organizations. *EDPACS*, 1-19.

5. Ko, U., Hartley, K., & Hayak, M. (2025). Exploring AI in education: Preservice teacher perspectives, usage, and considerations. *Journal of Information Technology Education: Research*, 24, 021.
6. Ilic, P., Casebourne, I., & Wegerif, R. (Eds.). (2024). *Artificial intelligence in education: The intersection of technology and pedagogy*. Springer
7. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign

SEMESTER- 1

Course Code: CCA02

Course Title: AI-Based Instructional Design and Adaptive Content Development

Course ID: 261/PGDICTAIE/CC102

Course Credit: 4

Maximum Marks:100

Theory:70

Internal Assessment: 30

Exam Time: 3hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Define the basic concepts and principles of instructional design and adaptive learning.	Remember
CO2	Explain AI-powered tools and technologies used for instructional design and content creation.	Understand
CO3	Develop digital instructional materials and adaptive learning content using AI tools.	Apply
CO4	Analyze the effectiveness of AI-based instructional strategies and adaptive learning systems.	Analyze
CO5	Evaluate the quality, usability, and ethical use of AI-generated instructional content.	Evaluate

Note:

1. A total of nine questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. (7 × 2 = 14 Marks)
3. The remaining eight questions shall be divided into four units with two questions from each unit.
4. Students shall be required to attempt one question from each unit. (4 × 14 = 56 Marks)

Unit 1: Foundations of Instructional Design

1.1 Meaning and Concept of Instructional Design: Definition, characteristics, principles, scope, and significance of instructional design in digital education.

1.2 Instructional Design Models : ADDIE, ASSURE, Dick and Carey Model, and learner-centered instructional planning.

1.3 Technology Integration Frameworks: TPACK, SAMR, RAT, and PICRAT models for technology-integrated teaching and learning.

1.4 Learning Design and Content Structuring: Learning outcomes, competency-based design, sequencing of content, microlearning, and learner engagement strategies.

1.5 Digital Instructional Resources: Text, multimedia, interactive resources, simulations, infographics, podcasts, and video-based learning materials.

1.6 ICT and Emerging Technologies in Instructional Design: Role of digital technologies in instructional planning, delivery, collaboration, and learner interaction.

Unit 2: Assisted Content Development

2.1 AI in Educational Content Development: Concept, features, scope, and significance of AI-assisted content creation in education.

2.2 AI Tools for Content Design: AI-supported tools for text generation, presentation development, visual design, educational communication, and instructional support.

2.3 AI-Assisted Lesson and Learning Design: AI-supported lesson planning, activity generation, rubric development, curriculum mapping, and instructional organization.

2.4 Multimedia and Interactive Content Creation: Development of presentations, videos, quizzes, interactive worksheets, storytelling resources, and learning objects using AI-supported tools.

2.5 Quality, Creativity, and Human Oversight in AI-Generated Content: Accuracy, originality, contextual relevance, bias, creativity, and educator supervision in AI-generated instructional materials.

Unit 3: Adaptive Learning and Personalized Instruction

3.1 Meaning and Foundations of Adaptive Learning: Concept, characteristics, principles, and significance of adaptive and personalized learning.

3.2 Personalized Learning Environments: Learner profiling, differentiated instruction, competency-based learning, and AI-supported personalization.

3.3 Intelligent Learning Systems: Adaptive learning platforms, intelligent tutoring systems, recommendation systems, and smart learning environments.

3.4 Data-Informed Learning Support: Learning pathways, learner progress monitoring, predictive support, and personalized feedback mechanisms.

3.5 Applications of Adaptive Learning: Applications in school education, higher education, online learning, skill development, and lifelong learning.

Unit 4: Emerging Innovations and Ethical Dimensions in AI-Based Instructional Design

4.1 Emerging Innovations in Digital Learning Design : Immersive learning, virtual and augmented reality, gamification, smart classrooms, and intelligent educational ecosystems.

4.2 Generative AI and Future Learning Design : Educational applications of Generative AI for instructional innovation, creativity, and learner engagement.

4.3 Ethical and Legal Issues in AI-Based Content Development: Privacy, bias, copyright, plagiarism, academic integrity, transparency, and responsible use of AI-generated content.

4.4 Evaluation and Quality Assurance of Digital Learning Materials: Accessibility, usability, inclusivity, pedagogical effectiveness, universal design, and quality standards for digital instructional content.

4.5 Future Directions in AI-Based Instructional Design: Future trends, evolving educator roles, human-AI collaboration, and sustainable integration of AI in instructional systems.

Suggested Assignments and Activities

1. Preparation of a lesson plan using instructional design principles.
2. Hands-on exploration of AI tools for educational content creation.
3. Development of digital instructional materials using multimedia tools.
4. Creation of AI-assisted presentations, quizzes, or learning resources.
5. Guided exploration of adaptive learning platforms and LMS.
6. Group discussion on benefits and limitations of AI-powered instructional design.
7. Comparative activity on traditional and AI-supported instructional methods.
8. Seminar or presentation on future trends in AI-based education.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Demonstration-based teaching of AI tools and digital platforms.
3. Hands-on activities and practical exploration of content creation tools.
4. Project-based and activity-based learning.
5. Group discussions, seminars, and presentations.
6. Blended learning using online and offline teaching methods.
7. Collaborative learning and guided practice sessions.
8. Practical demonstrations of adaptive learning applications.

Core Readings

1. Clark, R. C., & Mayer, R. E. (2016). *E-Learning and the science of instruction*. Wiley.
2. Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University.
3. Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.
4. Luckin, R. (2018). Machine learning and human intelligence: The future of education for the 21st century. UCL Institute of Education Press.
5. Koper, R. (2005). Current research in learning design. *Educational Technology & Society*, 8(3), 13–22.
6. Brusilovsky, P., & Millán, E. (2007). User models for adaptive hypermedia and adaptive educational systems. In P. Brusilovsky, A. Kobsa, & W. Nejdl (Eds.), *The adaptive web* (pp. 3–53). Springer.
7. Durlach, P. J., & Lesgold, A. M. (2012). *Adaptive technologies for training and education*. Cambridge University Press.

Advanced Readings

1. Woolf, B. P. (2010). Building intelligent interactive tutors: Student-centered strategies for revolutionizing e-learning. Morgan Kaufmann.
2. Nkambou, R., Bourdeau, J., & Mizoguchi, R. (Eds.). (2010). Advances in intelligent tutoring systems. Springer.
3. Siemens, G., & Baker, R. S. (2012). Learning analytics and educational data mining: Towards communication and collaboration. In Proceedings of the 2nd International Conference on Learning Analytics and Knowledge (pp. 252–254).
4. Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial intelligence trends in education: A narrative overview. *Procedia Computer Science*, 136, 16–24.
5. Papadakis, S. (Ed.). (2024). IoT, AI, and ICT for educational applications: Technologies to enable education for all. Springer.
6. Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12(1), 1–13.
7. Holmes, W., Porayska-Pomsta, K., Holstein, K., et al. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, 32, 504–526.

Web Resources and OERs:

[UNESCO Open Educational Resources \(OER\)](#);
[OECD AI in Education and Skills](#);
[Commonwealth of Learning \(COL\) OER Resources](#);
[MIT OpenCourseWare](#);
[OER Commons](#);
[MERLOT Educational Resources](#);
[OpenLearn by The Open University](#);
[Creative Commons Resources](#);
[SWAYAM](#);
[DIKSHA Platform](#);
[e-PG Pathshala](#);
[NPTEL](#);
[National Digital Library of India \(NDLI\)](#);
[e-Yantra IIT Bombay](#);

SEMESTER - 1

The student has to opt one from the following two discipline specific courses

Course Code: DSE-01

Course Title: AI- Enabled Teaching, Learning, and Assessment

Course ID: 261/PGDICTAIE/DS103

Course Credit: 3

Maximum Marks:75

Theory:50

Internal Assessment: 25

Exam Time: 2 hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Define the role and importance of AI in teaching, learning, and assessment.	Remember
CO2	Explain AI-based tools and technologies used in classroom practices and assessment processes.	Understand
CO3	Use AI-supported tools for teaching-learning activities and digital assessment.	Apply
CO4	Analyze the effectiveness of AI-driven teaching-learning and assessment practices.	Analyze
CO5	Evaluate the impact of AI-driven educational practices on learner engagement and academic performance.	Evaluate

Note:

1. A total of seven questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. (7 × 2 = 14 Marks)
3. The remaining six questions shall be divided into three units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. (3 × 12 = 36 Marks)

Unit 1: AI-Enabled Teaching and Learning

1.1 Foundations of AI-Enabled Education: Concept, scope, significance, and role of AI in teaching-learning processes.

1.2 AI-Supported Teaching Approaches: Differentiated instruction, competency-based learning, learner engagement, collaborative learning, and personalized learning support.

1.3 AI Tools for Teaching and Classroom Interaction: AI-supported presentation tools, virtual teaching assistants, intelligent content support systems, interactive classroom applications, and educational chatbots.

1.4 AI-Assisted Learner Support Systems: Academic support systems, intelligent tutoring support, mentoring assistance, learner guidance, and AI-supported communication tools.

1.5 Smart Classroom Practices: AI-supported classroom management, attendance systems, learner participation tracking, engagement monitoring, and collaborative digital learning environments.

Unit 2: AI-driven Assessment and Feedback AI-Enabled Assessment and Learning Analytics

2.1 AI in Educational Assessment: Role and significance of AI in formative, summative, diagnostic, authentic, and competency-based assessment.

2.2 AI-Supported Assessment Tools and Practices: Online quizzes, automated grading systems, rubric-based assessment, e-portfolios, authentic assessment, competency-based assessment, plagiarism detection, and digital evaluation platforms.

2.3 Intelligent Feedback and Performance Monitoring: Instant feedback systems, personalized feedback, learner progress tracking, predictive performance analysis, and student performance dashboards.

2.4 Learning Analytics and Data-Informed Education: Educational data, learner analytics, engagement analytics, academic performance analysis, and evidence-based improvement of teaching-learning processes.

2.5 Challenges and Ethical Issues in AI-Based Assessment: Bias, transparency, reliability, privacy, academic integrity, ethical concerns, and responsible use of AI in assessment practices.

Unit 3: Applications and Future of AI-driven Education Emerging Applications and Future Directions of AI in Education

3.1 AI Applications in Educational Institutions : Applications of AI in school education, higher education, teacher education, online learning, and professional development environments.

3.2 Generative AI for Teaching and Academic Support : Use of Generative AI for lesson support, academic assistance, content enrichment, creativity enhancement, and learner engagement.

3.3 Intelligent Learning Environments: Smart classrooms, intelligent tutoring systems, immersive learning environments, virtual learning assistants, and AI-supported educational ecosystems.

3.4 Opportunities and Challenges of AI-Enabled Education: Accessibility, inclusion, efficiency, digital divide, technological dependency, implementation barriers, and ethical concerns in AI integration.

3.5 Future Trends in AI-Enabled Education: Human-AI collaboration, future teacher roles, responsible AI integration, lifelong learning, and emerging innovations in educational technology.

Suggested Assignments and Activities

1. Hands-on exploration of AI-supported teaching and assessment tools.
2. Preparation of AI-assisted classroom teaching activities.
3. Demonstration of online quizzes and digital assessment platforms.
4. Observation and reporting of AI applications in educational settings.
5. Comparative activity on traditional and AI-driven classroom practices.
6. Group discussion on benefits and challenges of AI-driven assessment.

7. Preparation of a brief report on learner analytics and student performance monitoring.
8. Seminar or presentation on future trends in AI-driven education.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Demonstration-based teaching of AI tools and educational applications.
3. Hands-on activities and guided practical sessions.
4. Activity-based and project-based learning.
5. Group discussions, seminars, and presentations.
6. Blended learning using online and offline teaching methods.
7. Collaborative learning and peer interaction activities.
8. Case study-based learning and classroom demonstrations.

Core Readings

1. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education*. Centre for Curriculum Redesign.
2. University Grants Commission. (2023). *Guidelines for the use of generative AI in higher education*. UGC.
3. Artificial Intelligence in Education Caspari-Sadeghi, S. (2023). Artificial Intelligence in Technology-Enhanced Assessment: A Survey of Machine Learning. *Journal of Educational Technology Systems*, 51(3), 372–386. <https://doi.org/10.1177/00472395221138791>
4. Artificial Intelligence in Education Ng, D. T. K., Lee, M., Tan, R. J. Y., Hu, X., & Downie, J. S. (2023). A review of AI teaching and learning from 2000 to 2020. *Education and Information Technologies*, 28, 8445–8501. <https://doi.org/10.1007/s10639-022-11491-w>
5. Educational Assessment A review of assessment for learning with artificial intelligence. (2024). *Computers in Human Behavior: Artificial Humans*, 2(1), 100040. <https://doi.org/10.1016/j.chbah.2023.100040>
6. Artificial Intelligence in Education Hamdani, A., Suherman, A., Darmawan, B., & Permana, E. (2025). Assessment and evaluation of an artificial intelligence-based deep learning curriculum. *Curricula: Journal of Curriculum Development*. <https://doi.org/10.17509/curricula.v4i2.95294>

Advanced Readings

1. Educational Assessment How does leveraging artificial intelligence in assessments impact student outcomes? A systematic review. (2026). *Computer Science Review*, 61, 100929. <https://doi.org/10.1016/j.cosrev.2026.100929>
2. Generative AI in Education Caines, A., Benedetto, L., Taslimipoor, S., et al. (2023). On the application of Large Language Models for language teaching and assessment technology. *arXiv*. <https://arxiv.org/abs/2307.08393>
3. Educational Assessment Perkins, M., Furze, L., Roe, J., & MacVaugh, J. (2023). The AI Assessment Scale (AIAS): A Framework for Ethical Integration of Generative AI in Educational Assessment. *arXiv*. <https://arxiv.org/abs/2312.07086>

4. Artificial Intelligence in Education Yaacoub, A., Tarnpradab, S., Khumprom, P., Assaghir, Z., Prevost, L., & Da-Rugna, J. (2025). Enhancing AI-Driven Education: Integrating Cognitive Frameworks, Linguistic Feedback Analysis, and Ethical Considerations for Improved Content Generation. arXiv. <https://arxiv.org/abs/2505.00339>
5. Educational Assessment Stokkink, P. (2025). The Impact of AI on Educational Assessment: A Framework for Constructive Alignment. arXiv. <https://arxiv.org/abs/2506.23815>
6. Educational Technology Artificial intelligence in teaching and teacher professional development: A systematic review. (2025). ScienceDirect.

OR

SEMESTER- 1

Course Code: DSE-01

Course Title: Educational Data Mining and Learning Analytics

Course ID: 261/PGDICTAIE/DS104

Course Credit: 3

Maximum Marks:75

Theory:50

Internal Assessment: 25

Exam Time: 2 hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the basic concepts and types of educational data used in learning environments.	Understand
CO2	Apply spreadsheet and dashboard tools for organizing and visualizing student data.	Apply
CO3	Analyze student engagement data to identify learners requiring academic support.	Analyze
CO4	Evaluate ethical practices and policies related to the use of student data.	Evaluate

Note:

1. A total of seven questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. ($7 \times 2 = 14$ Marks)
3. The remaining six questions shall be divided into three units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. ($3 \times 12 = 36$ Marks)

Unit 1: Foundations of Educational Data Mining

1.1 Educational Data and Types of Educational Data : Nature and types of educational data: learner profiles, attendance records, assignment submissions, quiz attempts, discussion participation, clickstream data, and engagement records.

1.2 Sources of Educational Data : Learning Management Systems (LMS), MOOCs, online learning platforms, digital assessment systems, educational applications, and institutional databases.

1.3 Data Organization and Management: Data collection, organization, sorting, filtering, coding, spreadsheet management, and introductory data handling techniques.

1.4 Introduction to Educational Data Mining : Meaning, characteristics, importance, processes, and applications of educational data mining in teaching-learning environments.

1.5 Ethical and Responsible Use of Educational Data : Privacy, consent, confidentiality, data security, digital ethics, responsible data practices, and institutional data governance.

Unit 2: Learning Analytics and Data Visualization

2.1 Foundations of Learning Analytics : Meaning, scope, importance, and role of learning analytics in improving educational practices and learner success.

2.2 Key Educational Indicators and Metrics : Learner engagement, participation rate, time-on-task, assignment completion, attendance patterns, academic progress, and retention indicators.

2.3 Data Visualization Techniques : Bar charts, pie charts, line graphs, heatmaps, infographics, interactive reports, and educational dashboards.

2.4 Educational Dashboard Tools and Analytics Platforms : Introduction to spreadsheet tools, dashboard systems, LMS analytics, AI-supported analytics platforms, and learner monitoring tools.

2.5 Interpretation of Educational Data: Identifying learner patterns, engagement trends, performance gaps, and evidence-based interpretation of educational data for instructional improvement.

Unit 3: Predictive Analytics, Learner Support and Ethical Practices

3.1 Identifying At-Risk Learners : Indicators of low engagement, declining participation, irregular attendance, delayed submissions, and academic risk factors.

3.2 Predictive and Rule-Based Analytics in Education : Basic understanding of predictive analytics, rule-based approaches, early warning systems, and learner support models.

3.3 Data-Informed Learner Support and Academic Intervention : Teacher's role in academic intervention, mentoring support, learner guidance, personalized support strategies, and evidence-based educational decision-making.

3.4 Policies, Ethics and Governance of Educational Data : Institutional policies, responsible use of learner analytics, algorithmic bias, transparency, accountability, and ethical use of AI-supported analytics.

3.5 Communication and Reporting of Learning Analytics : Preparation of learner progress reports, visualization-based reporting, communication with learners and parents, and reflective use of analytics for improvement.

Suggested Assignments and Activities

1. Guided extraction of sample student activity data from a demonstration LMS.
2. Basic data sorting, filtering, and organisation using spreadsheet software.
3. Creation of simple charts and visualisations using educational data.
4. Development of a basic dashboard for monitoring student engagement.
5. Identification of at-risk patterns using sample learner data.
6. Preparation of a learner support plan based on analytics data.
7. Case study analysis related to educational data use and learner support.
8. Classroom discussion on responsible handling of student data.

Suggested Pedagogy

1. Interactive lectures and guided discussions.
2. Step-by-step practical sessions using spreadsheet tools.
3. Demonstration-based learning with sample educational datasets.
4. Hands-on activities for data organisation and visualisation.
5. Case study-based learning and classroom discussions.
6. Collaborative learning and peer learning activities.
7. Activity-based learning using learner analytics tasks.
8. Guided exploration of dashboard and reporting tools.

Core Readings

1. Baker, R. S., & Inventado, P. S. (2014). Educational data mining and learning analytics. In *Learning analytics* (pp. 61-75). Springer.
2. Government of India. (2023). *The Digital Personal Data Protection Act, 2023*.
3. Baker, R. S., & Inventado, P. S. (2014). Educational Data Mining and Learning Analytics. In J. A. Larusson & B. White (Eds.), *Learning Analytics: From Research to Practice* (pp. 61–75). Springer. https://doi.org/10.1007/978-1-4614-3305-7_4
4. Baker, R. S., & Siemens, G. (2014). Educational data mining and learning analytics. In R. K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences* (2nd ed.). Cambridge University Press.
5. Romero, C., & Ventura, S. (2007). Educational data mining: A survey from 1995 to 2005. *Expert Systems with Applications*, 33(1), 135–146. <https://doi.org/10.1016/j.eswa.2006.04.005>
6. Silva, C. S., & Fonseca, J. M. (2017). Educational Data Mining: A Literature Review. In *Advances in Intelligent Systems and Computing* (pp. 87–94). Springer. https://doi.org/10.1007/978-3-319-46568-5_9
7. Bienkowski, M., Feng, M., & Means, B. (2012). Enhancing Teaching and Learning Through Educational Data Mining and Learning Analytics: An Issue Brief. U.S. Department of Education.

Advanced Readings

1. Silva, C. S., & Fonseca, J. M. (2017). Educational Data Mining: A Literature Review. In *Advances in Intelligent Systems and Computing* (pp. 87–94). Springer. https://doi.org/10.1007/978-3-319-46568-5_9
2. Bienkowski, M., Feng, M., & Means, B. (2012). Enhancing Teaching and Learning Through Educational Data Mining and Learning Analytics: An Issue Brief. U.S. Department of Education.
3. Ferguson, R. (2012). Learning analytics: Drivers, developments and challenges. *International Journal of Technology Enhanced Learning*, 4(5–6), 304–317. <https://doi.org/10.1504/IJTEL.2012.051816>
4. Siemens, G., & Baker, R. S. J. D. (2012). Learning analytics and educational data mining: Towards communication and collaboration. In *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge* (pp. 252–254). <https://doi.org/10.1145/2330601.2330661>
5. Pena-Ayala, A. (2014). *Educational Data Mining: Applications and Trends*. Springer. <https://doi.org/10.1007/978-3-319-02738-8>
6. Romero, C., Ventura, S., Pechenizkiy, M., & Baker, R. S. J. D. (Eds.). (2010). *Handbook of Educational Data Mining*. CRC Press. <https://doi.org/10.1201/b10274>

7. ElAtia, S., Ipperciel, D., & Zaïane, O. R. (2016). *Data Mining and Learning Analytics: Applications in Educational Research*. Wiley.
8. Viberg, O., Hatakka, M., Bälter, O., & Mavroudi, A. (2018). The current landscape of learning analytics in higher education. *Computers in Human Behavior*, 89, 98–110. <https://doi.org/10.1016/j.chb.2018.07.027>
9. Algarni, A. (2016). Data Mining in Education. *International Journal of Advanced Computer Science and Applications*, 7(6), 456–461.

SEMESTER- 1

Course Code: SEC-01

Course Title: Learning Management System and MOOCs Development

Course Id: 261/PGDICTAIE/SE101

Credits: 2

Maximum Marks: 50

Theory : 20 Marks

Internal Assessment: 05 Marks

Practical Examination: 20 Marks

Practical Assessment: 05 Marks

Time: 2hrs.

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the basic concepts and features of Learning Management Systems and MOOCs.	Understand
CO2	Demonstrate the use of LMS platforms for course management and learner interaction.	Apply
CO3	Develop basic digital learning resources and online course components for MOOCs.	Create
CO4	Evaluate the effectiveness of LMS and MOOCs in online teaching-learning processes.	Evaluate

Note:

1. A total of five questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of four short-answer questions covering both units. (4 × 1 = 4 Marks)
3. The remaining four questions shall be divided into two units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. (2 × 8 = 16 Marks)

Unit 1: Foundations and Applications of Learning Management Systems (LMS)

1.1 Introduction to Learning Management Systems : Meaning, concept, characteristics, functions, and significance of Learning Management Systems in digital education.

1.2 Types and Components of LMS : Open-source and commercial LMS; user management, course management, communication tools, content repositories, assessment tools, and analytics features.

1.3 LMS Tools and Functionalities : Course creation, content uploading, assignments, quizzes, grading systems, attendance management, discussion forums, announcements, feedback tools, and progress tracking.

1.4 Applications of LMS in Education: Online teaching-learning, blended learning, flipped learning, learner engagement, collaborative learning, academic communication, and digital assessment practices.

1.5 Popular LMS Platforms : Introduction and practical orientation to Moodle, Google Classroom, Canvas, Blackboard, Schoology, and Microsoft Teams for Education.

Unit 2: MOOC Development and Digital Course Delivery

2.1 Introduction to MOOCs : Meaning, characteristics, evolution, types of MOOCs and significance of MOOCs in open and lifelong learning.

2.2 National and International MOOC Platforms : Overview, features, certification, learner support, and educational applications of MOOC platforms and online learning ecosystems such as SWAYAM, Coursera, edX, and other online learning platforms.

2.3 Digital Content Development for MOOCs : Development of e-content, video lectures, presentations, quizzes, infographics, discussion activities, digital assignments, and Open Educational Resources (OERs) for MOOCs.

2.4 Online Course Development and Learner Engagement : Course structuring, module planning, learner interaction strategies, discussion forums, peer learning, learner support, accessibility, and online engagement techniques.

2.5 Quality Assurance and Challenges in MOOCs: Learner participation, completion and retention issues, digital divide, accessibility challenges, quality standards, certification practices, and future scope of MOOCs.

Practicum

1. Hands-on exploration of LMS platforms such as Moodle, Google Classroom, or Canvas.
2. Creation and management of an online classroom or digital course page.
3. Uploading and organizing learning materials, assignments, quizzes, and announcements on LMS.
4. Development of digital learning resources including presentations, quizzes, and multimedia content.
5. Preparation and uploading of a short educational video or recorded lecture.
6. Designing a basic online course/module using LMS tools.
7. Conducting learner interaction activities using discussion forums and collaborative tools.
8. Exploring grading, feedback, attendance, and learner progress tracking features in LMS.
9. Comparative exploration of national and international MOOC platforms.
10. Development of a mini MOOC module integrating learning resources and assessment activities.

Suggested Assignments / Activities

1. Prepare a comparative report on open-source and commercial LMS platforms.
2. Review and analyze the structure of any one MOOC course.
3. Prepare a reflective report on the role of MOOCs in higher education and lifelong learning.

4. Conduct a case study on online learner engagement and participation.
5. Analyze the advantages and limitations of LMS in blended learning environments.
6. Prepare a learner support and communication plan for an online course.
7. Review the certification and assessment practices of different MOOC platforms.
8. Prepare a report on accessibility and inclusivity in online learning platforms.
9. Analyze the challenges faced by learners in online and MOOC-based learning environments.
10. Prepare a mini project/report on the future scope of LMS and MOOCs in digital education.

Suggested Pedagogy

1. Demonstration-based teaching and guided practice.
2. Hands-on training using LMS platforms.
3. Practical activities and project-based learning.
4. Interactive discussions and collaborative learning.
5. Guided exploration of MOOCs platforms and online courses.
6. Blended learning using online and offline methods.
7. Activity-based learning through digital content creation.
8. Peer learning and practical demonstrations.

Core Readings

1. Creative Commons. (n.d.). *About CC licenses*. Creative Commons.
2. Ministry of Education. (n.d.). *SWAYAM: Study Webs of Active-Learning for Young Aspiring Minds*. Government of India.
3. de Oliveira, P. C., Cunha, C. J. C. A., & Nakayama, M. K. (2016). Learning Management Systems (LMS) and e-learning management: An integrative review and research agenda. *Journal of Information Systems and Technology Management*, 13(2), 157–180. <https://doi.org/10.4301/S1807-17752016000200001>
4. Despujol, I., Castañeda, L., Marín, V. I., & Turró, C. (2022). What do we want to know about MOOCs? Results from a machine learning approach to a systematic literature mapping review. *International Journal of Educational Technology in Higher Education*, 19(53). <https://doi.org/10.1186/s41239-022-00359-1>
5. Billsberry, J., & Alony, I. (2024). The MOOC Post-Mortem: Bibliometric and Systematic Analyses of Research on Massive Open Online Courses (MOOCs), 2009 to 2022. *Journal of Management Education*, 48(4). <https://doi.org/10.1177/10525629231190840>
6. Shah, J., Khanna, M., & Patel, H. (2021). Technology Adoption and Continuance of MOOCs: A Systematic Literature Review, Synthesis and Future Research Agenda. *Journal of Content, Community & Communication*, 14, 106–132. <https://doi.org/10.31620/JCCC.12.21/10>
7. Deng, R., Benckendorff, P., & Gannaway, D. (2019). Progress and new directions for teaching and learning in MOOCs. *Computers & Education*, 129, 48–60. <https://doi.org/10.1016/j.compedu.2018.10>

Advanced Readings

1. Liyanagunawardena, T. R., Adams, A. A., & Williams, S. A. (2013). MOOCs: A systematic study of the published literature 2008–2012. *International Review of Research in Open and Distributed Learning*, 14(3), 202–227.

2. Ferguson, R., Scanlon, E., & Harris, L. (2016). Developing a Strategic Approach to MOOCs. *Journal of Interactive Media in Education*, 2016(1), 21. <https://doi.org/10.5334/jime.439>
3. Gorshenin, A. (2018). Toward modern educational IT-ecosystems: From learning management systems to digital platforms. *arXiv*. <https://arxiv.org/abs/1806.11154>
4. Abaricia, C. P., & Delos Santos, M. L. C. (2023). Enhancing E-Learning System Through Learning Management System (LMS) Technologies: Reshape the Learner Experience. *arXiv*. <https://arxiv.org/abs/2309.12354>
5. Rani, M., Srivastava, K. V., & Vyas, O. P. (2017). An Ontological Learning Management System. *arXiv*. <https://arxiv.org/abs/1708.09475>
6. Revyathi, A., & Tselios, N. (2019). Extension of Technology Acceptance Model by using System Usability Scale to assess behavioral intention to use e-learning. *Education and Information Technologies*, 24, 2341–2355. <https://doi.org/10.1007/s10639-019-09869-4>
7. Siemens, G. (2013). Massive Open Online Courses: Innovation in Education? In R. McGreal, W. Kinuthia, & S. Marshall (Eds.), *Open Educational Resources: Innovation, Research and Practice*. Commonwealth of Learning
8. Alraimi, K. M., Zo, H., & Ciganek, A. P. (2015). Understanding the MOOCs continuance: The role of openness and reputation. *Computers & Education*, 80, 28–38. <https://doi.org/10.1016/j.compedu.2014.08.006>
9. Albelbisi, N. A., Al-Adwan, A. S., & Habibi, A. (2021). Self-regulated learning and satisfaction: A key determinants of MOOC success. *Education and Information Technologies*, 26(3), 3459–3481. <https://doi.org/10.1007/s10639-020-10404-z>

SEMESTER- 1

Course Code: AEC-01

Course Title: Academic Communication, Critical Thinking in the Digital Age

Course ID: 261/PGDICTAIE/AE101

Credits: 2

Maximum Marks: 50

Theory : 35 Marks

Internal Assessment: 15 Marks

Time: 2hrs.

Course Objectives

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the fundamentals of academic and digital communication.	Understand
CO2	Apply effective communication skills in academic and digital environments.	Apply
CO3	Analyze information and arguments using critical thinking skills.	Analyze
CO4	Evaluate digital information and media sources for academic and professional use.	Evaluate

Note:

1. A total of **Five questions** shall be set in the question paper.
2. **Question No. 1** will be **compulsory** and shall consist of **7 short answer type questions**, each carrying **1 mark**, covering the **entire syllabus**. ($7 \times 1 = 7 \text{ marks}$)
3. The remaining **four questions** shall be divided into **two units**, with **two questions from each unit**.
4. Students will be required to **attempt one question from each unit**. ($2 \times 14 = 28 \text{ marks}$)

Unit 1: Age Academic Communication in the Digital Age

1.1 Meaning and Importance of Academic Communication: Concept, characteristics, significance, and role of academic communication in educational and professional contexts.

1.2 Forms and Modes of Communication: Oral, written, visual, non-verbal, and digital communication in academic environments.

1.3 Digital Communication Tools and Platforms: E-mail communication, video conferencing tools, collaborative platforms, webinars, discussion forums, and virtual communication environments.

1.4 Academic Writing and Presentation Skills: Paragraph writing, note-making, summarizing, paraphrasing, referencing basics, presentation skills, and academic documentation.

1.5 Ethics and Professional Practices in Communication: Netiquette, responsible digital communication, academic honesty, plagiarism awareness, respectful online interaction, and communication ethics.

Unit 2: Critical Thinking and Digital Literacy

2.1 Meaning and Characteristics of Critical Thinking : Concept, characteristics, significance, and components of critical thinking in academic and digital contexts.

2.2 Logical Reasoning and Problem-Solving Skills : Observation, interpretation, analysis, reflection, decision-making, argumentation, and problem-solving strategies.

2.3 Evaluation of Digital Information : Credibility, authenticity, reliability, fact-checking, source verification, and critical evaluation of online information.

2.4 Misinformation, Media Bias, and Digital Awareness : Fake news, misinformation, disinformation, media bias, algorithmic influence, and responsible media consumption.

2.5 Digital Literacy and Responsible Digital Citizenship : Digital literacy, digital citizenship, privacy, cyber safety, digital footprint, ethical use of digital platforms, and responsible participation in online environments.

Suggested Assignments and Activities

1. Preparation of academic presentations using digital tools.
2. Writing and formatting of academic e-mails and short reports.
3. Group discussion on fake news and misinformation.
4. Critical analysis of online articles or digital media content.
5. Hands-on activity using online collaboration and communication tools.
6. Preparation of reflective summaries from digital learning resources.
7. Seminar on communication ethics and responsible digital behaviour.
8. Presentation on the importance of critical thinking in academic life.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Activity-based and collaborative learning.
3. Demonstration of digital communication tools.
4. Case study and problem-solving activities.
5. Group discussions, seminars, and presentations.
6. Hands-on practice in academic writing and communication.
7. Blended learning using online and offline methods.
8. Reflective and inquiry-based learning activities.

Core Readings

1. Kerruish, E. (2025). Critical thinking in higher education: taking Stiegler's counsel on the digital milieu. *Pedagogy, Culture & Society*, 33(1), 1–17. <https://doi.org/10.1080/14681366.2023.2183983>
2. Whitworth, A. (2006). Communicative competence in the information age: Towards a critical theory of information literacy education. *Innovation in Teaching and Learning in Information and Computer Sciences*, 5(1), 1–13. <https://doi.org/10.11120/ital.2006.05010007>

3. Ytre-Arne, B., & Das, R. (2021). Audiences' communicative agency in a datafied age: Interpretative, relational and increasingly prospective. *Communication Theory*, 31(4), 779–797. <https://doi.org/10.1093/ct/qtaa018>
4. Lopez-Gonzalez, H., Sosa, L., Sánchez, L., & Faure-Carvallo, A. (2023). Media and information literacy and critical thinking: A systematic review. *Revista Latina de Comunicación Social*. <https://doi.org/10.4185/rlds-2023-1939>
5. Rai, R. D., & Murthy, S. (2023). A systematic review of theoretical perspectives and technology-based strategies for fostering critical thinking skills in the age of misinformation. *Zenodo*. <https://doi.org/10.5281/zenodo.14003706>
6. Buraphadeja, V., & Dawson, K. (2008). Content analysis in computer-mediated communication: Analyzing models for assessing critical thinking through the lens of social constructivism. *American Journal of Distance Education*, 22(3), 130–145. <https://doi.org/10.1080/08923640802224568>
7. Goodfellow, R. (2011). Literacy, literacies, and the digital in higher education. *Teaching in Higher Education*, 16(1), 131–144. <https://doi.org/10.1080/13562517.2011.544125>

Advanced Readings

1. Sugimoto, C. R., Work, S., Larivière, V., & Haustein, S. (2016). Scholarly use of social media and altmetrics: A review of the literature. *arXiv*. <https://arxiv.org/abs/1608.08112>
2. Pnevmatikos, D., Christodoulou, P., & Georgiadou, T. (2023). Trends in critical thinking instruction in 21st-century research and practice: Upgrading instruction in digital environments. *Thinking Skills and Creativity*, 49, 101383. <https://doi.org/10.1016/j.tsc.2023.101383>
3. Godhe, A., Magnusson, P., & Sofkova Hashemi, S. (2023). “And then I check to see if it looks legit” – digital critical competence in teacher education. *Frontiers in Education*. <https://doi.org/10.3389/educ.2023.1137563>
4. Jones, R. H., & Hafner, C. A. (2021). *Understanding Digital Literacies: A Practical Introduction* (2nd ed.). Routledge.
5. Buckingham, D. (2015). Defining Digital Literacy: What do young people need to know about digital media? *Nordic Journal of Digital Literacy*, 10, 21–35.
6. Jenkins, H., Purushotma, R., Weigel, M., Clinton, K., & Robison, A. J. (2009). *Confronting the Challenges of Participatory Culture: Media Education for the 21st Century*. MIT Press.
7. Rheingold, H. (2012). *Net Smart: How to Thrive Online*. MIT Press.

SEMESTER- 1

Course Code: VAC-01

Course Title: Digital Ethics, Cyber Security & Data Privacy

Course ID: 261/PGDICTAIE/VA101

Course Credit: 2

Maximum Marks: 50

Theory Examination: 35 Marks

Internal Assessment: 15 Marks

Time: 2hrs.

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the basic concepts of digital ethics, cyber security, and data privacy.	Understand
CO2	Apply safe and responsible practices while using digital technologies and online platforms.	Apply
CO3	Analyze common cyber security threats and digital risks in online environments.	Analyze
CO4	Evaluate the importance of ethical behaviour and data protection in the digital world.	Evaluate

Note:

1. A total of **Five questions** shall be set in the question paper.
2. **Question No. 1** will be **compulsory** and shall consist of **7 short answer type questions**, each carrying **1 mark**, covering the **entire syllabus**. ($7 \times 1 = 7 \text{ marks}$)
3. The remaining **four questions** shall be divided into **two units**, with **two questions from each unit**.
4. Students will be required to **attempt one question from each unit**. ($2 \times 14 = 28 \text{ marks}$)

Unit 1: Digital Ethics and Responsible Technology Use

1.1 Meaning and Foundations of Digital Ethics : Concept, characteristics, significance, and ethical dimensions of digital technologies and online environments.

1.2 Digital Citizenship and Responsible Digital Behaviour : Digital citizenship, responsible participation in digital environments, respectful online interaction, and ethical use of digital platforms.

1.3 Academic Integrity and Ethical Use of Digital Content : Plagiarism, copyright, citation practices, intellectual property rights, Creative Commons, and ethical use of digital resources.

1.4 Social Media Ethics and Digital Footprint : Responsible communication, online identity, digital footprint, professional conduct, and ethical social media practices.

1.5 Ethical Challenges in Digital Environments : Misinformation, disinformation, cyberbullying, online harassment, algorithmic influence, digital addiction, and misuse of digital technologies.

Unit 2: Cybersecurity and Data Privacy

2.1 Introduction to Cybersecurity: Meaning, importance, scope, and need for cybersecurity in educational, personal, and professional contexts.

2.2 Common Cyber Threats and Risks: Phishing, malware, ransomware, hacking, identity theft, online fraud, data breaches, and social engineering attacks.

2.3 Safe and Secure Digital Practices: Strong passwords, multi-factor authentication, secure browsing, data backup, safe online communication, and responsible device usage.

2.4 Data Privacy and Protection: Personal data, privacy settings, digital consent, responsible data sharing, data protection practices, and awareness of digital privacy rights.

2.5 Cyber Safety Awareness and Responsible Use of Technology: Cyber safety measures, cyber hygiene, awareness practices, safe use of digital platforms, and responsible technology use in educational and professional environments.

Suggested Assignments and Activities

1. Preparation of a report on digital ethics and responsible online behaviour.
2. Identification and discussion of common cyber security threats.
3. Hands-on activity on creating strong passwords and secure online practices.
4. Case study analysis related to cyber safety and data privacy.
5. Group discussion on plagiarism and ethical use of digital content.
6. Awareness activity on cyber safety practices in educational settings.
7. Preparation of posters or presentations on digital citizenship.
8. Seminar on safe and responsible use of digital technologies.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Demonstration-based learning and practical activities.
3. Case study-based teaching and problem-solving activities.
4. Collaborative learning and group discussions.
5. Activity-based learning using real-life digital scenarios.
6. Awareness-oriented workshops and presentations.
7. Blended learning using digital resources and classroom interaction.
8. Reflective learning and guided discussions.

Core Readings

1. Common Sense Education. (2021). *Digital citizenship curriculum*. Common Sense Media.

2. Newport, C. (2019). *Digital minimalism: Choosing a focused life in a noisy world*. Portfolio/Penguin.
3. Floridi, L. (2013). *The Ethics of Information*. Oxford University Press.
4. Moor, J. H. (1985). What Is Computer Ethics? *Metaphilosophy*, 16(4), 266–275. <https://doi.org/10.1111/j.1467-9973.1985.tb00173.x>
5. Pardo, A., & Siemens, G. (2014). Ethical and Privacy Principles for Learning Analytics. *British Journal of Educational Technology*, 45(3), 438–450. <https://doi.org/10.1111/bjet.12152>
6. Cavoukian, A. (2009). Privacy by Design: The 7 Foundational Principles. Information and Privacy Commissioner of Ontario, Canada.
7. Saltzer, J. H., & Schroeder, M. D. (1975). The Protection of Information in Computer Systems. *Proceedings of the IEEE*, 63(9), 1278–1308. <https://doi.org/10.1109/PROC.1975.9939>

Advanced Readings

1. Solove, D. J. (2008). *Understanding Privacy*. Harvard University Press.
2. Mittelstadt, B. D., & Floridi, L. (2016). The Ethics of Big Data: Current and Foreseeable Issues in Biomedical Contexts. *Science and Engineering Ethics*, 22(2), 303–341. <https://doi.org/10.1007/s11948-015-9652-2>
3. Borgman, C. L. (2018). Open Data, Grey Data, and Stewardship: Universities at the Privacy Frontier. *arXiv*. <https://arxiv.org/abs/1802.02953>
4. Prinsloo, P. (2017). Fleeing from Frankenstein’s Monster and Meeting Kafka on the Way: Algorithmic Decision-Making in Higher Education. *E-Learning and Digital Media*, 14(3), 138–163. <https://doi.org/10.1177/2042753017731355>
5. Taddeo, M. (2019). The Ethical Governance of the Digital During and After the COVID-19 Pandemic. *Minds and Machines*, 30, 171–176. <https://doi.org/10.1007/s11023-020-09528-5>
6. Narayanan, A., & Kapoor, S. (2024). *AI Snake Oil: What Artificial Intelligence Can Do, What It Can’t, and How to Tell the Difference*. Princeton University Press.
7. Richards, N., & King, J. (2014). Big Data Ethics. *Wake Forest Law Review*, 49, 393–432.

SEMESTER-1

Course Code: SEMINAR

Course Title: Seminar (ICT and AI in Education)

Course ID: 261/PGDICTAIE/SEM101

Credits: 2

Maximum Marks: 50
Seminar Presentation: 50 Marks

Course Outcomes (COs)

CO Code	On completion of the seminar, learners will be able to:	Bloom's Level
CO1	Explain key concepts related to ICT and Artificial Intelligence in education.	Understand
CO2	Analyze emerging trends and issues in educational technology.	Analyze
CO3	Present ideas effectively using ICT and AI-based digital tools.	Create
CO4	Evaluate peer presentations and participate in academic discussion.	Evaluate

Course Description

The Seminar is an academic component designed to develop learners' critical thinking, academic communication, and presentation skills in the area of ICT and Artificial Intelligence in Education. It enables learners to explore emerging technologies, current issues, and innovative practices in education and present their understanding using ICT and AI-supported tools.

Seminar Themes

1. ICT integration in education
2. Artificial Intelligence in teaching-learning
3. Generative AI and educational applications
4. Personalized and adaptive learning systems
5. Learning analytics and educational data use
6. Digital pedagogy and blended learning approaches
7. Open Educational Resources (OER)
8. Ethical issues in AI and digital education
9. Inclusive education using ICT and assistive technologies
10. Future trends in AI-powered education

Mode of Seminar (ICT & AI Based)

The seminar shall be conducted using ICT and AI-supported academic practices, including:

1. Digital presentations using PPT/Canva or similar tools

2. Use of AI tools for content structuring and visualization
3. Integration of multimedia elements in presentation
4. Academic communication through digital platforms
5. Data, charts, and AI-generated insights (where applicable)

Evaluation Scheme

Component	Marks
Content Quality & Conceptual Understanding	10
Analytical Depth & Critical Thinking	10
ICT & AI Tool Usage	10
Presentation Skills	10
Viva Voce / Interaction	10

Instructions for Seminar

1. Each learner shall prepare and present the seminar individually on the allotted/topic approved by the teacher.
2. Use of ICT and AI-supported tools for presentation, content preparation, and academic communication shall be encouraged.
3. The seminar presentation shall reflect clarity of concepts, critical understanding, analytical thinking, and effective academic expression.
4. Learners shall use relevant digital resources, references, and presentation materials to support their ideas and arguments.
5. Active participation in discussion, questioning, peer interaction, and feedback sessions shall be mandatory.
6. Proper academic ethics, citation practices, and originality of work shall be maintained during seminar preparation and presentation.
7. The seminar may include presentations, demonstrations, case studies, reflective discussions, or technology-supported academic activities.
8. Evaluation shall be based on content organization, presentation skills, subject understanding, use of technology, interaction, and overall academic performance.

SEMESTER- 2

Course Code: CCA03

Course Title: AI-Integrated Pedagogies and Emerging Educational Technologies

Course ID: 261/PGDICTAIE/CC201

Course Credit: 4

Maximum Marks:100

Theory:70

Internal Assessment: 30

Exam Time: 3hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the concepts and significance of AI-integrated pedagogies and emerging educational technologies.	Understand
CO2	Apply AI-supported pedagogies and digital tools in teaching-learning processes.	Apply
CO3	Analyze the role of emerging technologies in enhancing learner engagement and learning experiences.	Analyze
CO4	Evaluate the effectiveness of AI-supported and technology-enabled educational practices.	Evaluate

Note:

1. A total of nine questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. ($7 \times 2 = 14$ Marks)
3. The remaining eight questions shall be divided into four units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. ($4 \times 14 = 56$ Marks)

Unit 1: Foundations of AI-Integrated Pedagogies

1.1 AI-Integrated Pedagogy and Educational Technology: Meaning, characteristics, significance, intelligent learning systems, and applications of AI in education.

1.2 Behaviorism and Technology-Integrated Learning: Reinforcement, drill-and-practice methods, learner engagement, feedback, and behavioral learning practices.

1.3 Cognitivism and Technology-Supported Learning: Memory, cognitive processes, problem-solving, metacognition, and digital learning practices.

1.4 Constructivism and Technology-Enhanced Learning: Knowledge construction, active learning, scaffolding, collaborative learning, and learner-centered digital environments.

1.5 Connectivism and Networked Learning: Digital connectivity, online learning communities, knowledge sharing, and networked learning practices.

Unit 2: Contemporary and Emerging Pedagogical Practices

2.1 Pedagogy, Andragogy, and Heutagogy: Teacher-centered learning, adult learning, self-determined learning, and learner autonomy.

2.2 Cybergogy and Peeragogy in Digital Learning: Virtual learning engagement, online interaction, peer learning, and collaborative participation.

2.3 Inquiry-Based and Experiential Learning: Inquiry, experiential learning, reflective practices, authentic learning, and problem-solving approaches.

2.4 Project-Based and Competency-Based Learning: Project-based learning, competency development, skill-oriented learning, and performance-based practices.

2.5 Critical, Creative, and Design Thinking Pedagogies: Critical thinking, creativity, innovation, design thinking, and transformative learning practices.

Unit 3: Emerging Technologies and Interactive Learning Environments

3.1 Augmented Reality (AR) and Virtual Reality (VR) in Education: Immersive learning, simulations, virtual laboratories, and interactive learning experiences.

3.2 Internet of Things (IoT) and Smart Learning Environments: Connected classrooms, smart educational systems, sensor-based learning, and intelligent learning environments.

3.3 Gamification and Game-Based Learning: Gamification strategies, learner motivation, educational games, and simulation-based learning.

3.4 Story-Based and Simulation-Based Learning Practices: Storytelling pedagogy, narrative learning, role-play, scenario-based learning, and simulations.

3.5 Mobile, Cloud, and Ubiquitous Learning: Mobile learning, cloud-based platforms, flexible learning systems, and anytime-anywhere learning.

Unit 4: AI-Supported Inclusive and Future Pedagogical Practices

4.1 AI for Inclusive and Accessible Education: Assistive technologies, accessibility tools, adaptive learning systems, and inclusive pedagogies.

4.2 Human–AI Collaboration in Education: AI-assisted teaching-learning, intelligent tutoring systems, and collaborative classroom practices.

4.3 Future Trends and Innovations in Educational Technology: Generative AI, robotics, immersive technologies, and emerging educational innovations.

4.4 AI-Supported Lesson Planning and Instructional Design: AI-assisted lesson planning, instructional design tools, AI-generated resources, and digital content creation.

4.5 AI-Supported Assessment and Future Pedagogical Practices: AI-based assessment, automated feedback, adaptive assessment, digital evaluation, and personalized learning pathways.

Suggested Assignments and Activities

1. Exploration of AI-supported teaching-learning tools and applications.

2. Preparation of lesson plans using AI and emerging technologies.
3. Demonstration of AR/VR, gamification, or simulation-based learning activities.
4. Comparative study of traditional and AI-integrated pedagogical practices.
5. Group discussion on smart classrooms and future learning environments.
6. Case study analysis of AI applications in educational institutions.
7. Presentation on emerging educational technologies and digital innovations.
8. Development of technology-enabled and learner-centered classroom activities.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Demonstration-based teaching of AI and emerging technologies.
3. Hands-on activities and guided practical sessions.
4. Activity-based and project-based learning.
5. Case study-based learning and reflective discussions.
6. Collaborative learning and peer interaction activities.
7. Blended learning using digital platforms and classroom teaching.
8. Seminar presentations and technology exploration activities.

Core Readings

1. Kye, B., Han, N., Kim, E., Park, Y., & Jo, S. (2021). Educational applications of the metaverse. *Journal of Educational Technology*, 37(4), 1011-1044.
2. Mystakidis, S. (2022). Metaverse in education. *Metaverse*, 3(2), 1-17.
3. Ng, D. T. K., Lee, M., Tan, R. J. Y., Hu, X., & Chu, S. K. W. (2023). A review of AI teaching and learning from 2000 to 2020. *Education and Information Technologies*, 28, 8445–8501. <https://doi.org/10.1007/s10639-022-11491-w>
4. Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12(22). <https://doi.org/10.1186/s41039-017-0062-8>
5. Zawacki-Richter, O., Marin, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(39). <https://doi.org/10.1186/s41239-019-0171-0>
6. Dimitriadou, E., & Lanitis, A. (2023). A critical evaluation, challenges, and future perspectives of using artificial intelligence and emerging technologies in smart classrooms. *Smart Learning Environments*, 10(12). <https://doi.org/10.1186/s40561-023-00231-3>
7. Chiu, T. K. F., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, 100118.

Advanced Readings

1. Chen, X., Xie, H., Zou, D., & Hwang, G. J. (2020). Application and theory gaps during the rise of Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 1, 100002.

2. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.
3. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. Pearson Education.
4. Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*, 8, 75264–75278. <https://doi.org/10.1109/ACCESS.2020.2988510>
5. Khosravi, H., Shum, S. B., Chen, G., Conati, C., Tsai, Y. S., Kay, J., Knight, S., Martinez-Maldonado, R., Sadiq, S., & Gašević, D. (2022). Explainable Artificial Intelligence in Education. *Computers and Education: Artificial Intelligence*, 3, 100074.
6. Luo, J., Zheng, C., Yin, J., & Teo, H. H. (2025). Design and assessment of AI-based learning tools in higher education: a systematic review. *International Journal of Educational Technology in Higher Education*, 22(42). <https://doi.org/10.1186/s41239-025-00540-2>
7. Hemminki-Reijonen, U., Hassan, N. M. A. M., & Huutilainen, M. (2025). Design of generative AI-powered pedagogy for virtual reality environments in higher education. *npj Science of Learning*. <https://doi.org/10.1038/s41539-025-00326-1>
8. Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: the state of the field. *International Journal of Educational Technology in Higher Education*, 20(22).

SEMESTER- 2

Course Code: CCA04

Course Title: AI in Educational Policy, Leadership and Governance

Course ID: 261/PGDICTAIE/CC202

Course Credit: 4

Maximum Marks: 100

Theory:70

Internal Assessment: 30

Exam Time: 3hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the role of AI in educational policy, leadership, and governance.	Understand
CO2	Apply AI-supported approaches for educational planning, administration, and decision-making.	Apply
CO3	Analyze the impact of AI on educational leadership and institutional management.	Analyze
CO4	Evaluate challenges and future possibilities of AI-enabled governance in education.	Evaluate

Note:

1. A total of nine questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. (7 × 2 = 14 Marks)
3. The remaining eight questions shall be divided into four units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. (4 × 14 = 56 Marks)

Unit 1: Educational Policy and AI Governance Frameworks

- 1.1 Educational Policy and Governance: Concept, characteristics, significance, and scope of educational policy, administration, leadership, and governance in contemporary education systems.
- 1.2 AI and Digital Transformation in Education: Role of Artificial Intelligence, automation, and digital technologies in transforming educational systems and governance practices.
- 1.3 National Frameworks and Policy Initiatives: NEP 2020, National Educational Technology Forum (NETF), National Digital Education Architecture (NDEAR), Academic Bank of Credits (ABC), and digital transformation initiatives in education.

1.4 International AI Policies and Recommendations: UNESCO recommendations on AI, OECD AI initiatives, Sustainable Development Goals (SDGs), and global AI governance frameworks in education.

Unit 2: AI-Integrated Educational Leadership

2.1 Educational Leadership in the Digital Age: Leadership roles, digital leadership, and strategic planning in technology-enabled education.

2.2 AI-Supported Educational Decision-Making: Educational data, institutional analytics, and evidence-based decision-making practices.

2.3 Change Management and Institutional Transformation: Institutional adaptation, innovation management, and leadership challenges in AI-integrated education.

2.4 Human Resource and Academic Management: Faculty management, academic coordination, communication systems, and institutional support practices.

Unit 3: AI-Enabled Governance and Quality Enhancement

3.1 E-Governance and Smart Educational Systems: Digital governance systems, online institutional services, smart educational management, and technology-enabled governance practices.

3.2 Quality Assurance and Accreditation in Digital Education: Quality standards, accreditation processes, institutional review systems, ranking frameworks, and continuous quality improvement in digital education.

3.3 AI for Educational Planning and Resource Optimization: Institutional planning, infrastructure management, resource optimization, forecasting, and strategic educational management practices.

3.4 Research, Innovation, and Policy Implementation: Educational innovation, AI research initiatives, policy implementation strategies, institutional innovation ecosystems, and research-supported governance practices.

Unit 4: Emerging Trends and Future Directions in AI Governance

4.1 Smart Governance and Digital Educational Ecosystems: Smart campuses, digital universities, intelligent institutional systems, and AI-enabled governance practices.

4.2 Global Developments and AI Initiatives in Education: International AI initiatives, global educational transformation, and technology-driven institutional reforms.

4.3 Challenges in AI-Integrated Governance: Digital divide, infrastructure limitations, policy implementation challenges, and institutional preparedness.

4.4 Regulatory and Governance Frameworks for AI: AI governance frameworks, policy regulations, institutional accountability, and compliance practices in education.

4.5 Future Directions of AI in Educational Governance: Future governance models, AI-supported institutional transformation, and emerging trends in educational leadership and administration.

Suggested Assignments and Activities

1. Study and analysis of NEP 2020 technology-related recommendations.
2. Preparation of reports on AI applications in educational administration.
3. Case study analysis of digital governance practices in educational institutions.
4. Group discussion on leadership challenges in AI-enabled education.
5. Exploration of AI-supported administrative and monitoring tools.
6. Comparative analysis of traditional and digital governance practices.
7. Presentation on emerging trends in AI-enabled educational leadership.
8. Preparation of a simple technology-enabled institutional management plan.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.
2. Case study-based learning and policy analysis.
3. Demonstration-based exploration of AI-supported administrative tools.
4. Activity-based and collaborative learning.
5. Seminar presentations and group discussions.
6. Blended learning using digital resources and classroom teaching.
7. Reflective learning and guided discussions.
8. Project-based learning and institutional analysis activities.

Core Readings

1. Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60-70.
2. Ministry of Education. (2020). *National Education Policy 2020*. Government of India.
3. Holmes, W., Miao, F., & UNESCO. (2021). *AI and Education: Guidance for Policy-Makers*. UNESCO Publishing. Discusses policy frameworks, ethical governance, and leadership strategies for AI integration in education.
4. Ghimire, A., & Edwards, J. (2024). From Guidelines to Governance: A Study of AI Policies in Education. arXiv. <https://arxiv.org/abs/2403.15601>. Examines institutional AI policy gaps, governance challenges, privacy, and transparency issues in schools and universities.
5. Wang, Y. (2021). Artificial intelligence in educational leadership: A symbiotic role of human-artificial intelligence decision-making. *Journal of Educational Administration*. Explores AI-supported leadership and decision-making in educational institutions.
6. Gealone, D. D. (2025). The Impact of Artificial Intelligence on Educational Leadership Practices in State Universities and College. *Proceedings of IMACSI 2025*. Focuses on AI-driven governance, ethical frameworks, stakeholder collaboration, and institutional leadership.
7. Favero, L., Pérez-Ortiz, J. A., Käser, T., & Oliver, N. (2026). AI in Education Beyond Learning Outcomes: Cognition, Agency, Emotion, and Ethics. arXiv. Discusses governance, ethics, learner agency, and responsible AI deployment in education systems.

Advanced Readings

1. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – where are the educators? *International Journal of Educational Technology in Higher Education*, 16(39). <https://doi.org/10.1186/s41239-019-0171-0>
2. Crompton, H., Burke, D., & Gregory, K. H. (2024). The use of artificial intelligence in educational leadership and administration. *Educational Technology Research and Development*. Discusses AI-supported administrative leadership, governance structures, and institutional transformation.
3. Selwyn, N. (2019). *Should Robots Replace Teachers? AI and the Future of Education*. Polity Press. Examines policy, ethics, governance, and educational implications of AI adoption.
4. Williamson, B., & Eynon, R. (2020). Historical Threads, Missing Links, and Future Directions in AI in Education. *Learning, Media and Technology*, 45(3), 223–235. Discusses governance, datafication, and educational policymaking in AI environments.
5. Prinsloo, P. (2017). Fleeing from Frankenstein’s Monster and Meeting Kafka on the Way: Algorithmic Decision-Making in Higher Education. *E-Learning and Digital Media*, 14(3), 138–163. <https://doi.org/10.1177/2042753017731355>
6. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. Pearson Education. Addresses educational transformation, leadership, governance, and strategic AI adoption.
7. OECD. (2021). *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*. OECD Publishing. Covers international educational policy and governance approaches for emerging technologies.

SEMESTER- 2

The student has to opt one from the following three discipline specific courses

Course Code: DSE-02

Course Title: AI for Personalized and Inclusive Learning

Course ID: 261/PGDICTAIE/DS203

Course Credit: 3

Maximum Marks: 75

Theory: 50

Internal Assessment: 25

Exam Time: 2 hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the concepts of personalized and inclusive learning using AI technologies.	Understand
CO2	Apply AI-supported tools and strategies for personalized learning experiences.	Apply
CO3	Analyze the role of AI in supporting inclusive education and diverse learners.	Analyze
CO4	Evaluate the effectiveness of AI-enabled personalized and inclusive learning practices.	Evaluate

Note:

1. A total of seven questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. (7 × 2 = 14 Marks)
3. The remaining six questions shall be divided into three units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. (3 × 12 = 36 Marks)

Unit 1: Foundations of Personalized and Inclusive Learning

1.1 Personalized Learning and Learner Diversity: Concept, characteristics, learner diversity, learner-centered learning, and individualized learning pathways.

1.2 Inclusive Education and Diverse Learning Needs: Inclusive education, equity, accessibility, participation, and diverse learning needs.

1.3 AI in Personalized Learning: AI-supported adaptive learning, personalized instruction, learner profiling, and customized learning support.

1.4 Individualized Education Plans (IEPs) and Learner Support: Concept of IEPs, individualized planning, learner progress support, and AI-assisted educational interventions.

1.5 AI-Supported Learning Systems: Adaptive learning systems, intelligent tutoring systems, educational chatbots, and learner assistance tools.

Unit 2: AI for Inclusive and Accessible Learning Environments

2.1 AI-Supported Inclusive Learning Practices: AI-supported teaching-learning practices for inclusive and learner-centered classrooms.

2.2 Assistive Technologies and Accessibility Tools: Speech-to-text, text-to-speech, screen readers, captioning tools, translation tools, and accessibility applications.

2.3 AI Strategies for Diverse Learners: AI-supported strategies for learners with visual impairment, hearing impairment, learning difficulties, neurodiversity, giftedness, and physical challenges.

2.4 Universal Design for Learning and Differentiated Instruction: UDL, differentiated instruction, flexible learning support, and accessible educational environments.

2.5 AI for Learner Engagement and Participation: Interactive learning tools, gamified learning, collaborative learning, and learner participation practices.

Unit 3: Emerging Practices and Future Directions in Personalized and Inclusive Learning

3.1 AI-Supported Assessment Practices: Adaptive assessment, competency-based assessment, ipsative assessment, and personalized feedback practices.

3.2 AI-Enabled Learning Environments: Smart classrooms, immersive learning environments, and AI-supported educational ecosystems.

3.3 Applications of AI in Inclusive Education: Applications of AI technologies in schools, higher education, teacher education, and online learning environments.

3.4 Emerging Trends and Challenges in Personalized Learning: Generative AI, accessibility barriers, digital divide, technological limitations, and implementation challenges.

3.5 Future of Personalized and Inclusive Learning: Inclusive educational innovation, learner-centered environments, and future directions of AI-enabled education.

Suggested Assignments and Activities

1. Exploration of AI-supported personalized learning tools.
2. Observation and reporting of assistive technologies used in education.
3. Preparation of learner-centered classroom activities using AI tools.
4. Comparative analysis of traditional and personalized learning approaches.
5. Group discussion on inclusive education and AI-supported learning.
6. Demonstration of accessibility and learner support tools.
7. Case study analysis of AI applications in inclusive classrooms.
8. Presentation on future trends in personalized and inclusive learning.

Suggested Pedagogy

1. Interactive lectures and classroom discussions.

2. Demonstration-based teaching of AI-supported learning tools.
3. Activity-based and collaborative learning.
4. Hands-on exploration of assistive and adaptive technologies.
5. Case study-based learning and reflective discussions.
6. Blended learning using online and offline teaching methods.
7. Group discussions, seminars, and presentations.
8. Learner-centered and inclusive teaching approaches.

Core Readings

1. Government of India. (2016). *The Rights of Persons with Disabilities Act, 2016*.
2. UNESCO. (2020). *Accessible digital textbooks for all*. UNESCO Publishing.
3. Shireesha, M., & Jeevan, J. (2024). The Role of Artificial Intelligence in Personalized Learning: A Pathway to Inclusive Education. *Library Progress International*. <https://doi.org/10.48165/bapas.2024.44.2.1>
4. Villatoro Moral, S., & Moreno-Tallón, F. (2025). Artificial Intelligence and Inclusive Education: Technological Solutions for Accessible Teaching. *A Systematic Review. Digital Education Review*, 47, 62–77. <https://doi.org/10.1344/der.2025.47.62-77>
5. Pagliara, S. M., Bonavolontà, G., Pia, M., Falchi, S., Zurru, A. L., Fenu, G., & Mura, A. (2024). The Integration of Artificial Intelligence in Inclusive Education: A Scoping Review. *Information*, 15(12), 774. <https://doi.org/10.3390/info15120774>
6. Melo-López, V.-A., Basantes-Andrade, A., Gudiño-Mejía, C.-B., & Hernández-Martínez, E. (2025). The Impact of Artificial Intelligence on Inclusive Education: A Systematic Review. *Education Sciences*, 15(5), 539. <https://doi.org/10.3390/educsci15050539>
7. Li, K. C., & Wong, B. T.-M. (2023). Artificial intelligence in personalised learning: A bibliometric analysis. *Interactive Technology and Smart Education*, 20(3), 422–445. <https://doi.org/10.1108/ITSE-01-2023-0007>

Advanced Readings

1. Artificial intelligence in personalized learning: A global systematic review of current advancements and shaping future opportunities. (2025). *Social Sciences & Humanities Open*, 12, 102114. <https://doi.org/10.1016/j.ssaho.2025.102114>
2. Artificial intelligence-based personalised learning in education: a systematic literature review. (2025). *Discover Artificial Intelligence*. <https://doi.org/10.1007/s44163-025-00598-x>
3. Ahmed, S., Rahman, M. S., Kaiser, M. S., & Hosen, A. S. M. S. (2025). Advancing Personalized and Inclusive Education for Students with Disability Through Artificial Intelligence: Perspectives, Challenges, and Opportunities. *Digital*, 5(2), 11. <https://doi.org/10.3390/digital5020011>
4. Sajja, R., Sermet, Y., Cikmaz, M., Cwiertny, D., & Demir, I. (2023). Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education. *arXiv*. <https://arxiv.org/abs/2309.10892>
5. Yang, C., & Taele, P. (2025). AI for Accessible Education: Personalized Audio-Based Learning for Blind Students. *arXiv*. <https://arxiv.org/abs/2504.17117>

6. Laak, K.-J., & Aru, J. (2024). AI and personalized learning: bridging the gap with modern educational goals. arXiv. <https://arxiv.org/abs/2404.02798>
7. Ouyang, F., Zheng, L., Jiao, P., & Moore, M. G. (2022). Artificial intelligence in online higher education: A systematic review of empirical research from 2011 to 2020. *Education and Information Technologies*, 27, 7893–7925.
8. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.

OR

SEMESTER- 2

Course Code: DSE-02

Course Title: AI-responsive critical digital pedagogy

Course ID: 261/PGD-ICTAIE/DS204

Course Credit-3

Maximum Marks: 75

Theory: 50

Internal Assessment: 25

Exam Time: 2 hrs

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the concepts of digital pedagogy and AI-responsive teaching practices.	Understand
CO2	Apply digital pedagogical approaches and AI-supported tools in teaching-learning processes.	Apply
CO3	Analyze the impact of AI and digital technologies on teaching, learning, and learner participation.	Analyze
CO4	Evaluate the opportunities and challenges of AI-responsive digital pedagogy in education.	Evaluate

Note:

1. A total of seven questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of seven short-answer questions covering the entire syllabus. ($7 \times 2 = 14$ Marks)
3. The remaining six questions shall be divided into three units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. ($3 \times 12 = 36$ Marks)

Unit 1: Foundations of Critical Digital Pedagogy

1.1 Meaning and Concept of Critical Digital Pedagogy: Concept, characteristics, principles, and importance of critical digital pedagogy.

1.2 Critical Pedagogy and Digital Learning: Critical pedagogy, learner agency, participation, empowerment, and democratic learning practices.

1.3 Evolution of Digital and AI-Responsive Pedagogies: Digital pedagogy, online learning culture, and AI-responsive teaching-learning practices.

1.4 Digital Identity and Participatory Culture: Digital participation, learner identity, online communities, and digital citizenship.

1.5 Reflective and Collaborative Learning Practices: Reflection, collaboration, peer learning, and participatory digital learning practices.

Unit 2: Digital Media, Platforms, and Critical Learning Practices

2.1 Digital Media and Knowledge Construction: Digital media, knowledge sharing, and learner-generated digital content.

2.2 Critical Media and Information Literacy: Media literacy, misinformation, fact-checking, and evaluation of digital content.

2.3 Learning Platforms and Platform Culture: Digital learning platforms, algorithmic influence, and data-driven learning environments.

2.4 AI-Generated Content and Critical Engagement: AI-generated content, generative AI tools, and learner interaction with AI-supported resources.

2.5 Equity and Access in Digital Education : Accessibility, inclusion, digital divide, and digital divide in technology-enabled learning.

Unit 3: Transformative Practices in AI-responsive Education

3.1 Collaborative and Networked Learning: Online collaboration, peer learning, and digital learning communities.

3.2 Creative and Interactive Digital Pedagogies: Storytelling pedagogy, multimedia learning, gamified learning, and digital projects.

3.3 Critical Reflection and Reflection in AI-enabled Learning: Critical reflection, learner autonomy, ethical awareness, and responsible AI engagement.

3.4 Challenges in AI-Responsive Pedagogy: Algorithmic bias, screen culture, digital surveillance, and pedagogical limitations.

3.5 Future Directions in Critical Digital Pedagogy: Emerging practices and future possibilities in AI-supported education.

Suggested Assignments and Activities

1. Critical analysis of digital learning platforms and online educational content.
2. Reflection activity on AI-supported learning experiences.
3. Group discussion on misinformation and digital media influence in education.
4. Preparation of collaborative digital learning activities.
5. Case study analysis of AI-responsive classroom practices.
6. Development of learner-generated multimedia content.
7. Seminar on equity and access in digital education.
8. Presentation on future trends in critical digital pedagogy.

Suggested Pedagogy

1. Interactive and reflective classroom discussions.
2. Collaborative and inquiry-based learning activities.
3. Case study-based teaching and critical analysis tasks.

4. Digital media exploration and participatory learning activities.
5. Seminar presentations and peer learning activities.
6. Blended learning using digital platforms and classroom interaction.
7. Reflective and learner-centered pedagogical approaches.
8. Activity-based learning through digital content creation and analysis.

Core Readings

1. Gutierrez-Ujaque, D. (2024). Towards a critical digital literacy and consciousness in higher education: the emancipatory role of critical digital pedagogy. *Pedagogies: An International Journal*, 19(3), 337–371. <https://doi.org/10.1080/1554480X.2024.2379787>
2. Aguilera, E., & Salazar, C. (2023). *Critical Digital Pedagogy in the Platform Society*. Oxford Research Encyclopedia of Education. Oxford University Press. <https://doi.org/10.1093/acrefore/9780190264093.013.1888>
3. Koseoglu, S., Veletsianos, G., & Rowell, C. (Eds.). (2023). *Critical Digital Pedagogy in Higher Education*. AU Press. <https://doi.org/10.15215/aupress/9781778290015.01>
4. Janfada, M., Heidari, E., & Lin, A. (2025). Transcending multiliteracies pedagogies in, for, through AI-oriented learning spaces: a dialogic perspective. *Pedagogies: An International Journal*. <https://doi.org/10.1080/1554480X.2025.2563621>
5. Mallik, S., & Gangopadhyay, A. (2023). Proactive and reactive engagement of artificial intelligence methods for education: a review. *Frontiers in Artificial Intelligence*, 6, 1151391. <https://doi.org/10.3389/frai.2023.1151391>
6. Samuel, Y., Brennan-Tonetta, M., Samuel, J., Kashyap, R., Kumar, V., Kaashyap, S. K., Chidipothu, N., Anand, I., & Jain, P. (2023). Cultivation of human centered artificial intelligence: culturally adaptive thinking in education (CATE) for AI. *Frontiers in Artificial Intelligence*, 6, 1198180. <https://doi.org/10.3389/frai.2023.1198180>
7. Koole, M., Bhatt, I., Bozkurt, A., et al. (2025). Critical GenAI Literacy: Postdigital Configurations. *Postdigital Science and Education*. <https://doi.org/10.1007/s42438-025-00573-w>
8. Kim, N., Lee, V. W. Y., Mecham, S., & De Costa, P. I. (2025). Problematizing and addressing equity issues in multiliteracies and the use of generative AI: why critical ethical literacy matters. *Pedagogies: An International Journal*. <https://doi.org/10.1080/1554480X.2025.2557481>

Advanced Readings

1. Roe, J., & Perkins, M. (2024). Generative AI and Agency in Education: A Critical Scoping Review and Thematic Analysis. *arXiv*. <https://arxiv.org/abs/2411.00631>
2. Favero, L., Perez-Ortiz, J.-A., Käser, T., & Oliver, N. (2025). Do AI tutors empower or enslave learners? Toward a critical use of AI in education. *arXiv*. <https://arxiv.org/abs/2507.06878>
3. Markham, A. (2020). Critical Pedagogy as a Response to Datafication. In critical digital literacy studies discussing algorithmic and data literacy in digital societies. Discussed in contemporary digital pedagogy literature.
4. Freire, P. (1970). *Pedagogy of the Oppressed*. Continuum. Foundational work influencing critical digital pedagogy and emancipatory AI-responsive teaching approaches.
5. Selwyn, N. (2016). *Education and Technology: Key Issues and Debates* (2nd ed.). Bloomsbury Academic.

6. Morris, S. M., & Stommel, J. (2018). *An Urgency of Teachers: The Work of Critical Digital Pedagogy*. Hybrid Pedagogy Inc.
7. Stommel, J. (2014). *Critical Digital Pedagogy: A Definition*. Hybrid Pedagogy. Discusses openness, learner agency, participatory learning, and critical engagement with educational technologies.

SEMESTER-2

Course Code: SEC-02

Course Title: Advanced Digital and AI Tools for Education

Course Id: 261/PGDICTAIE/SE202

Credits: 2

Maximum Marks: 50

Theory Examination: 20 Marks

Internal Assessment: 05 Marks

Practical Examination: 20 Marks

Practical Assessment: 05 Marks

Time: 2hrs.

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain advanced digital and AI-based tools used in technology-enabled teaching-learning.	Understand
CO2	Apply AI-supported tools for interactive teaching, communication, and learner engagement.	Apply
CO3	Create digital learning resources using advanced educational technologies.	Create
CO4	Evaluate the effectiveness of advanced digital and AI tools in teaching-learning processes.	Evaluate

Note:

1. A total of five questions shall be set in the question paper.
2. Question No. 1 shall be compulsory and consist of four short-answer questions covering both units. ($4 \times 1 = 4$ Marks)
3. The remaining four questions shall be divided into two units, with two questions from each unit.
4. Students shall be required to attempt one question from each unit. ($2 \times 8 = 16$ Marks)

Unit 1: Advanced Digital Tools for Teaching and Learning

1.1 Interactive Digital Teaching Tools: Concept, principles, educational applications, advantages, limitations, and use of interactive whiteboards, polling tools, collaborative boards, and classroom interaction tools.

1.2 Digital Content Creation Tools: Concept, features, multimedia development, educational applications, advantages, limitations, and use of infographic tools, video editing tools, podcasting, and screen recording applications.

1.3 Cloud-Based Collaboration Tools: Concept, collaborative learning practices, communication support, educational applications, advantages, challenges, and use of shared documents, cloud storage, collaborative workspaces, and team communication platforms.

1.4 Gamified and Online Engagement Tools: Concept, learner engagement, motivation, educational applications, advantages, limitations, and use of live quizzes, gamified learning tools, and audience response systems.

1.5 Digital Productivity Tools for Educators: Concept, academic organization, workflow management, productivity enhancement, educational applications, and use of scheduling, task management, and note-taking tools.

Unit 2: Advanced AI Tools and Applications in Education

2.1 AI Tools for Academic Support: Concept, educational applications, and use of AI-assisted research, citation, summarization, and language support tools.

2.2 AI-Powered Creativity Tools: Concept, content generation, and use of AI tools for image, audio, video, and presentation creation.

2.3 AI Tools for Communication and Accessibility: Concept, communication support, and use of AI transcription, translation, speech recognition, and accessibility tools.

2.4 AI-Enhanced Learning Experiences: Concept, immersive learning, simulations, virtual learning experiences, and educational applications of AI-enhanced learning tools.

2.5 Practical Applications of AI Tools in Education: Use of AI tools for lesson planning, classroom activities, learner engagement, content development, and instructional support.

Practicum

1. Preparation of interactive classroom activities using digital engagement tools.
2. Development of multimedia learning resources using digital content creation tools.
3. Conducting collaborative learning activities using cloud-based platforms.
4. Designing gamified quizzes and online learner engagement activities.
5. Preparation of AI-supported lesson plans and instructional materials.
6. Use of AI tools for academic writing, citation, summarization, and research support.
7. Creation of AI-generated images, audio, video, and presentation resources.
8. Exploration of AI-based accessibility and communication support tools.
9. Designing immersive and simulation-based learning experiences.
10. Development of a digital teaching portfolio integrating advanced digital and AI tools.

Suggested Assignments and Activities

1. Comparative analysis of digital and AI-supported educational tools.
2. Preparation of a multimedia teaching-learning resource using digital tools.
3. Design of a gamified classroom learning activity.
4. Development of an AI-assisted lesson or digital learning module.
5. Review of AI tools for academic writing and research support.
6. Creation of AI-generated educational content for teaching-learning.

7. Development of inclusive digital learning resources using accessibility tools.
8. Presentation on innovative applications of AI tools in education.

Suggested Pedagogy

1. Demonstration-based teaching and guided practical sessions.
2. Hands-on exploration of digital and AI-supported tools.
3. Activity-based and project-based learning.
4. Collaborative learning and peer interaction activities.
5. Workshop-based learning for digital content creation.
6. Blended learning using online and offline methods.
7. Practical demonstrations and learner-centered activities.
8. Reflective learning through tool exploration and classroom applications.

Core Readings

1. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
2. UNESCO. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. UNESCO Publishing.
3. Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence unleashed: An argument for AI in education*. Pearson.
4. Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. Polity Press.
5. Redecker, C. (2017). *European framework for the digital competence of educators (DigCompEdu)*. Publications Office of the European Union.
6. Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12(1), 1–13.
7. Holmes, W., Porayska-Pomsta, K., Holstein, K., et al. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, 32, 504–526.
8. Siemens, G., & Baker, R. S. (2012). Learning analytics and educational data mining: Towards communication and collaboration. *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge*, 252–254.
9. Mayer, R. E. (2020). *Multimedia learning* (3rd ed.). Cambridge University Press.
10. Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record*, 108(6), 1017–1054.

Advanced Readings

1. Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for

education. *Learning and Individual Differences*, 103, 102274.
<https://doi.org/10.1016/j.lindif.2023.102274>

2. Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. *Learning, Media and Technology*, 45(3), 223–235.
<https://doi.org/10.1080/17439884.2020.1798995>
3. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on AI applications in higher education. *International Journal of Educational Technology in Higher Education*, 16(39).
<https://doi.org/10.1186/s41239-019-0171-0>
4. OECD. (2021). *OECD digital education outlook 2021: Pushing the frontiers with AI, blockchain and robots*. OECD Publishing.
<https://doi.org/10.1787/589b283f-en>
5. European Commission. (2022). *Ethical guidelines on the use of AI and data in teaching and learning for educators*. Publications Office of the European Union.
6. Chassignol, M., Khoroshavin, A., Klimova, A., & Bilyatdinova, A. (2018). Artificial intelligence trends in education: A narrative overview. *Procedia Computer Science*, 136, 16–24.
7. Woolf, B. P. (2010). *Building intelligent interactive tutors: Student-centered strategies for revolutionizing e-learning*. Morgan Kaufmann.
8. Nkambou, R., Bourdeau, J., & Mizoguchi, R. (Eds.). (2010). *Advances in intelligent tutoring systems*. Springer.
9. Papadakis, S. (Ed.). (2024). *IoT, AI, and ICT for educational applications: Technologies to enable education for all*. Springer.
10. Siemens, G. (2013). Learning analytics: The emergence of a discipline. *American Behavioral Scientist*, 57(10), 1380–1400.

SEMESTER-2

Course Code: AEC-02

Course Title: Open Educational Resources and AI-Enabled Decision-Making in Education

Course Id: 261/PGDICTAIE/AE202

Credits: 2

Maximum Marks: 50

Theory Examination: 35 Marks

Internal Assessment: 15 Marks

Time: 2hrs.

Course Outcomes (COs)

CO Code	On completion of this course, learners will be able to:	Bloom's Taxonomy Level
CO1	Explain the concepts and significance of Open Educational Resources and AI-enabled decision-making in education.	Understand
CO2	Apply open educational resources and digital repositories for academic and educational purposes.	Apply
CO3	Analyze educational data and AI-supported information for academic decision-making.	Analyze
CO4	Evaluate the opportunities and limitations of OER and AI-supported decision systems in education.	Evaluate

Note:

1. A total of **Five questions** shall be set in the question paper.
2. **Question No. 1** will be **compulsory** and shall consist of **7 short answer type questions**, each carrying **1 mark**, covering the **entire syllabus**. ($7 \times 1 = 7 \text{ marks}$)
3. The remaining **four questions** shall be divided into **two units**, with **two questions from each unit**.
4. Students will be required to **attempt one question from each unit**. ($2 \times 14 = 28 \text{ marks}$)

Unit 1: Open Educational Resources (OER)

1.1 Concept and Significance of OER: Meaning, scope, importance, and educational applications of Open Educational Resources.

1.2 Types and Sources of OER: Open textbooks, MOOCs, open courseware, repositories, open access journals, and digital learning platforms.

1.3 Open Licensing and Creative Commons: Copyright basics, Creative Commons licences, and open access practices.

1.4 5R Principles of OER: Retain, Reuse, Revise, Remix, and Redistribute in educational practices.

1.5 Quality and Integration of OER: Quality assurance, accessibility, inclusion, lifelong learning, and integration of OER in teaching-learning.

Unit 2: AI-Enabled Decision-Making in Education

2.1 AI Tools for Educational Decision-Making: AI-enabled tools for academic planning and educational support.

2.2 Educational Data and Reporting: Educational data, visualization, interpretation, and reporting practices.

2.3 AI-Supported Learner Support Systems: Learner profiling, progress tracking, and academic support systems.

2.4 AI Dashboards and Analytics Tools: Educational dashboards, analytics tools, and monitoring applications.

2.5 Applications of AI in Educational Decision-Making: Use of AI for planning, monitoring, reporting, and educational improvement.

Suggested Practical / Activity Components

1. Identification and review of major OER platforms and repositories.
2. Evaluation of an OER using quality indicators and standard criteria.
3. Application of Creative Commons licences to educational resources.
4. Designing a lesson plan integrating OER materials.
5. Analysis of sample student data for educational decision-making.
6. Demonstration-based use of simple AI-supported educational tools.
7. Case study analysis of AI-enabled decision-making in education.
8. Identification of ethical issues related to AI applications in education.
9. Preparation of a brief report on AI applications in educational settings.
10. Designing a simple data-informed teaching strategy.

Suggested Pedagogy

1. Demonstration and guided practice.
2. Hands-on activities using OER repositories and AI tools.
3. Case-based discussions on educational decision-making and ethics.
4. Collaborative and peer learning activities.
5. Activity-based learning and reflective discussions.
6. Guided exploration of digital educational resources.
7. Seminar presentations and classroom interaction.
8. Blended learning using online and offline teaching methods.

Core Readings

1. Wiley, D. (2014). *The Access Compromise and the 5R Permissions*.
2. Hilton, J. (2016). *Open educational resources and college textbook choices*.
3. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education*.
4. Luckin, R. (2018). *Machine Learning and Human Intelligence*.
5. OECD. (2021). *AI and the Future of Education*.
6. UNESCO. (2019). *Recommendation on Open Educational Resources (OER)*.

7. Luo, J., Zheng, C., Yin, J., & Teo, H. H. (2025). Design and assessment of AI-based learning tools in higher education: A systematic review. *International Journal of Educational Technology in Higher Education*, 22(42). <https://doi.org/10.1186/s41239-025-00540-2>.

Advanced Readings

1. Ng, D. T. K., Lee, M., Tan, R. J. Y., Hu, X., Downie, J. S., & Chu, S. K. W. (2023). A review of AI teaching and learning from 2000 to 2020. *Education and Information Technologies*, 28, 8445–8501. <https://doi.org/10.1007/s10639-022-11491-w>. Reviews AI literacy tools, intelligent learning environments, and digital pedagogical innovations.
2. Yim, I. H. Y., & Su, J. (2025). Artificial intelligence (AI) learning tools in K-12 education: A scoping review. *Journal of Computers in Education*, 12, 93–131. Examines AI tools such as Teachable Machine, LearningML, and Machine Learning for Kids in school education.
3. Ogunleye, B., Zakariyyah, K. I., Ajao, O., Olayinka, O., & Sharma, H. (2024). A Systematic Review of Generative AI for Teaching and Learning Practice. *Education Sciences*, 14(6), 636. <https://doi.org/10.3390/educsci14060636>. Focuses on generative AI applications in curriculum design, assessment, and instructional support.
4. Labadze, L., Grigolia, M., & Machaidze, L. (2023). Role of AI chatbots in education: Systematic literature review. *International Journal of Educational Technology in Higher Education*, 20(56). <https://doi.org/10.1186/s41239-023-00426-1>. Explores chatbot-based teaching assistants and conversational AI in learning environments.
5. Park, Y., & Doo, M. Y. (2024). Role of AI in blended learning: A systematic literature review. *International Review of Research in Open and Distributed Learning*, 25(1). <https://doi.org/10.19173/irrodl.v25i1.7566>. Reviews AI integration in blended and online learning systems.
6. Woo, J. H., & Choi, H. (2021). Systematic Review for AI-based Language Learning Tools. *arXiv*. <https://arxiv.org/abs/2111.04455>. Discusses NLP-based language learning tools, adaptive feedback, and automated assessment systems.
7. Elnaffar, S., Rashidi, F., & Abualkishik, A. Z. (2026). Teaching with AI: A Systematic Review of Chatbots, Generative Tools, and Tutoring Systems in Programming Education. *International Journal of Learning, Teaching and Educational Research*. Reviews AI coding tutors, generative AI assistants, and intelligent tutoring systems for programming education.
8. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.

SEMESTER-2

Course Code: INTERNSHIP

Course Title: INTERNSHIP/ PROJECT WORK

Course ID: 261/PGDICTAIE/IN201

Credits: 4

Maximum Marks: 100

Practical External: 70

Practical Internal: 30

Course Outcomes (COs)

CO Code	On completion of the internship, learners will be able to:	Bloom's Level
CO1	Apply ICT and AI tools in real educational teaching-learning environments.	Apply
CO2	Develop digital learning resources and AI-supported instructional materials.	Create
CO3	Analyze educational practices using ICT and AI integration.	Analyze
CO4	Evaluate the effectiveness of ICT and AI-based practices in education.	Evaluate

Course Description

The Internship / Project Work is a one-month experiential learning component designed to provide practical exposure to ICT and Artificial Intelligence applications in educational, training, research, and professional environments. The internship focuses on developing competencies in digital pedagogy, AI-enabled teaching-learning, instructional design, e-content development, educational analytics, and technology-supported educational practices.

Learners may undertake internship/project work in schools, colleges, universities, teacher education institutions, EdTech companies, AI-based educational organizations, training centres, research institutions, NGOs, digital learning platforms, media production units, NCERT, SCERT, DIETs, educational startups, and other relevant organizations working in the field of ICT and AI in education.

Internship Structure & Components

Unit 1: Orientation and Capacity Building

1.1 Orientation to ICT and AI in Education: Introduction to ICT tools, AI applications, and digital educational practices.

1.2 Training in Digital and AI Tools: Hands-on exposure to LMS, AI tools, e-content tools, and digital platforms.

1.3 Technology-Integrated Teaching Approaches: Blended learning, flipped learning, online learning, and interactive teaching practices.

1.4 AI-Supported Educational Applications: Use of AI tools for lesson planning, assessment, learner support, and content development.

1.5 Classroom Simulation and Micro-Teaching: Practice teaching sessions using ICT and AI-supported instructional strategies.

Unit 2: Field Immersion and Professional Practice

2.1 Internship Placement: Placement in schools, higher education institutions, EdTech organizations, AI-based companies, NCERT, SCERT, DIETs, NGOs, or educational organizations.

2.2 ICT and AI-Integrated Teaching Practice: Planning and delivery of ICT and AI-supported teaching-learning activities.

2.3 Participation in Institutional Activities: Engagement in academic, administrative, training, and co-curricular activities.

2.4 Digital Educational Support Activities: Support in e-content development, LMS management, online sessions, and digital learning activities.

2.5 Professional Collaboration and Observation

Collaboration with teachers, trainers, instructional designers, and educational professionals.

Unit 3: Digital Content Development and Project Work

3.1 Preparation of Digital Lesson Plans

Development of ICT and AI-integrated lesson plans and instructional designs.

3.2 Development of Digital Learning Resources

Preparation of presentations, videos, quizzes, podcasts, infographics, and interactive learning materials.

3.3 AI-Supported Educational Project

Development of a project related to AI applications, digital pedagogy, e-content, educational analytics, or instructional innovation.

3.4 Innovative Educational Practices: Design of blended learning activities, gamified learning tasks, or AI-supported learning experiences.

3.5 Project Documentation and Reporting: Documentation of project activities, outcomes, reflections, and evidences.

Unit 4: Reflective Practice and Internship Documentation

4.1 Internship Diary and Digital Portfolio: Maintenance of internship diary, reflective records, and digital portfolio.

4.2 Reflective Practice and Self-Evaluation: Reflection on teaching-learning experiences, professional growth, and digital competencies.

4.3 Collection of Internship Evidences: Lesson plans, screenshots, reports, photographs, recordings, certificates, and digital resources.

4.4 Internship Report Preparation: Preparation and submission of final internship/project report.

4.5 Presentation and Viva-Voce: Presentation of internship experiences, project outcomes, and viva-voce examination.

Suggested Internship Areas

1. ICT-integrated teaching-learning
2. AI-supported educational practices

3. E-content and multimedia development
4. LMS and MOOC support
5. Educational data and learner analytics
6. Digital assessment practices
7. Instructional design and digital pedagogy
8. AI tools for education and research
9. Inclusive and accessible digital learning
10. Educational technology innovation projects

Mode of Evaluation

Component	Marks
Attendance & Professional Conduct	5
Field Performance & Internship Work	25
Internship Report / Digital Portfolio	30
Presentation of Internship / Project Work	20
Viva-Voce Examination	20
Total	100

Institutional Support System

1. Internship shall be conducted in collaboration with schools, higher education institutions, teacher education institutions, EdTech companies, AI-based organizations, NCERT, SCERT, DIETs, NGOs, and other educational organizations.
2. Each learner shall work under the guidance of an Institutional Mentor and a University Supervisor.
3. Regular mentoring, monitoring, and feedback shall be ensured through periodic review meetings and progress interactions.
4. Learners shall maintain proper documentation of internship activities and submit a final internship report and digital portfolio at the end of the programme.

