



Master of Arts in **AI** ARTIFICIAL INTELLIGENCE IN EDUCATION

(MAAIE)

CURRICULUM GUIDE



CURRICULUM GUIDE

Master of Arts in Artificial Intelligence in Education



राष्ट्रीय शैक्षिक योजना एवं प्रशासन संस्ान

NATIONAL INSTITUTE OF EDUCATIONAL PLANNING AND ADMINISTRATION

(Deemed to be University)

17-B, Sri Aurobindo Marg, New Delhi - 110016, INDIA

August 2026

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(Deemed to be University u/s 3 of UGC Act, 1956)

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[PREFACE]

The rapid advancement of Artificial Intelligence (AI) is fundamentally transforming educational systems, pedagogical practices, and knowledge production globally. In India, the National Education Policy (NEP) 2020 strongly advocates for the integration of technology-enhanced learning to improve access, equity, and quality across the nation's vast educational landscape. Addressing the unique challenges and opportunities of the Indian context—from bridging the urban-rural learning divide to equipping a massive young population with future-ready skills—demands a new generation of professionals who can effectively harness the power of AI in the education sector.

The National Institute of Educational Planning and Administration (NIEPA), as a Deemed to be University established under Section 3 of the UGC Act, 1956, has been at the forefront of capacity building, research, and policy support in educational planning and administration for over six decades. In response to the growing demand for professionals who can bridge the gap between AI technology and educational practice, NIEPA has developed the Master of Arts (MA) in Artificial Intelligence in Education (MAAIE) programme. This pioneering programme is designed to create a new category of professionals—educational technologists with AI specialisation and AI in education strategists—who possess the unique hybrid skillsets increasingly demanded by education systems worldwide.

The MAAIE programme adopts a multidisciplinary approach, combining foundational concepts in AI and data science with pedagogical strategies, ethical frameworks, and practical application-oriented projects. It aims to cultivate experts—educators, researchers, technologists, trainers, administrators, and policymakers—with the knowledge and skills necessary to leverage the power of AI responsibly and effectively. The programme is structured over four semesters (two academic years) with a total of 80 credits, encompassing Core Courses, Elective Courses, Skill Enhancement Courses, and Experiential Learning components.

The development of this curriculum has been a collaborative and rigorous process. NIEPA constituted a Core Committee and engaged with external experts to guide the programme structure, credit framework, and curriculum design. Several meetings of the Core Committee, Departmental Academic Committee, Board of Studies, Academic Council, and Board of Management were convened to deliberate on and approve the programme. This Curriculum Guide presents the programme design, contents, course development teams, timelines, and the detailed course descriptions for Semester I, providing a comprehensive reference for committee members, faculty, and students.

Professor Shashikala Wanjari,
Vice-Chancellor, NIEPA





[ACKNOWLEDGEMENTS]

NIEPA initiated steps to introduce the Master of Arts in Artificial Intelligence in Education (MAAIE) programme in early 2026. The Institute constituted a Core Committee under the Chairmanship of the Vice-Chancellor and coordinated by Prof. K. Srinivas and Prof. Pradeep Kumar Misra to facilitate the preparation process of the MAAIE programme. Several meetings of the Experts Committee, Departmental Academic Committee, Board of Studies, Academic Council, and Board of Management were convened to shape and approve the programme.

We are honoured to present the Curriculum Guide of the Master of Arts in Artificial Intelligence in Education. This Curriculum Guide discusses the programme design and contents, the course development teams, a summary of the meetings and activities to develop the programme, and the scheme of studies and course details for Semester I. In the Curriculum Guide, every course is detailed under the headings of—about the course, course objectives, learning outcomes, course units, instructional hours, essential readings, mode of transaction, assessment of learning outcomes, and extended readings.

First of all, we would like to thank our Vice-Chancellor, Prof. Shashikala Wanjari, for his constant support and encouragement at every stage in the development of the programme. This Curriculum Guide is the outcome of the contribution of every faculty member of NIEPA involved in the MAAIE programme development. We gratefully acknowledge their valuable contributions in designing and developing the courses and shaping this guide through their comments and observations during internal review meetings.

We are equally grateful to all the external experts who have taken time from their busy schedules to review the developed courses and given their valuable comments during the committee meetings. Their words of wisdom helped us significantly improve the scheme of study and courses. We also thank the NIEPA Administration, Registrar, and his team for their support in facilitating the review process and procedures.

Prof. K. Srinivas & Prof. Pradeep Kumar Misra

Coordinators, MAAIE Core Committee



CORE COMMITTEE FOR THE MASTER OF ARTS IN Artificial Intelligence in Education

Name of the Member	Role
Prof. K. Srinivas	Chairperson
Prof. Kumar Suresh	Dean
Prof. Pradeep Kumar Misra	Member
Prof. Amit Gautam	Member
Dr. Paripally Shankar	Member
Dr. Kashyapi Awasthi	Member

ABOUT THE MASTER OF ARTS IN Artificial Intelligence in Education

About the Programme

The Master of Arts (MA) in Artificial Intelligence in Education (MAAIE) at the National Institute of Educational Planning and Administration (NIEPA) is a pioneering programme designed to bridge the essential gap between AI and educational theory and practice. The programme addresses the needs of different stakeholders in education by equipping them to leverage AI for targeted tasks, developing a new breed of professionals—educational technologists with AI specialisation, and AI in education and training strategists. The programme adopts a multidisciplinary approach, combining foundational concepts in AI and data science with pedagogical strategies, ethical frameworks, and practical, application-oriented projects..

Employability Prospects

This programme will specifically facilitate the following from the fields of education, training, and educational enterprises: Educators, Instructional Designers and Trainers who will use technological tools and strategies to design personalized learning pathways; Educational Administrators who will utilize predictive analytics for identifying at-risk students and optimize resource allocation; Policy Makers and Researchers who will analyze large-scale educational data for insights into learning gaps; and EdTech Technologists and Entrepreneurs who will build sophisticated, pedagogically sound, and ethically responsible AI-driven teaching-learning and training platforms.

Duration of the Programme

The duration of the programme is two years (four semesters). The minimum duration is four semesters (2 years) and the maximum duration is 4 years. The total credits for the programme are 80 credits, distributed across Core Courses (24 credits), Elective Courses (32 credits), Skill Enhancement Courses (16 credits), and Experiential Learning (8 credits).

Admission Criteria

Bachelors from any discipline will be eligible to take admission in the programme. The participants will be admitted based on a national level entrance examination, group discussions, and interaction with faculty and experts.

Programme Objectives

The MAAIE aims to prepare students to:

- Understand how AI plays a role in transforming educational systems, pedagogical practices, and knowledge production globally.

- Critically evaluate the ethical, social, and policy implications of AI in education.
- Develop practical competencies for integrating AI tools into educational practices, assessment, and institutional management.
- Conduct research on the impact and effectiveness of AI in educational contexts.
- Design and develop AI-enhanced learning environments, content, and assessments.
- Collaborate effectively in multidisciplinary teams to implement AI solutions in education and training.
- Prepare for professional careers in a wide range of teaching, policy evaluation, administrative, research, and EdTech positions.

Programme Structure and Credit Distribution

The MAAIE is an 80-credit programme structured over four semesters. The credit distribution is designed to provide a balanced foundation in AI, encompassing its applications in education, practical skills, and research and implementation experience. The type of courses, their credits, and focus are detailed below:

Course Type	Credits	Focus
Core Courses	24	Foundational knowledge in AI, its core principles, and relevance to education
Elective Courses (SWAYAM)	32	Specialized application areas of AI in education (online courses via SWAYAM)
Skill Enhancement Courses	16	Hands-on technical and practical skills for AI tools and technologies
Experiential Learning	8	Independent research, projects, or internships applying AI to real-world educational challenges
Total	80	

Mode of Transaction

Teaching-learning activities in MAAIE span a variety of modes, including face-to-face lectures, lab sessions, SWAYAM online courses, classroom discussions, readings, practical exercises, simulations, individual and group work, and preparation of study reports. The programme follows a blended learning model, combining face-to-face teaching-learning, self-learning, and online teaching-learning, and online collaborative student activities. The daily routine includes 90 minutes of theory, 90 minutes of lab, and SWAYAM mentoring sessions.

Credits, Assessment, and Certification

The students of MAAIE have to undertake courses of 80 credits. Upon completing 80 credits, they shall be awarded the Degree in the Master of Arts in Artificial Intelligence in Education. All the core courses and skill enhancement courses shall be assessed through a combination of internal assessment, external assessment, and experiential learning components.

- The following 10-point grading system shall be used for certification:

Range (%)	Letter Grade	Grade Point
85 and above	O (Outstanding)	10
75-84	A+ (Excellent)	9
70-74	A (Very Good)	8
65-69	B+ (Good)	7
60-64	B (Above average)	6
55-59	C (Average)	5
50-54	P (Pass)	4
49-	F (Fail)	0
--	Ab (Absent)	0

- Grade Point Average (GPA) of 0.5 and above to be rounded off to the following number to award the final grade.
- Students shall be awarded letter grades based on their performance. Range (%), as mentioned above, is only to declare equivalence after completion of the respective course (s) and shall be so mentioned at the back of the final grade sheet.
- The overall qualifying grade required for pursuing the next stage of the programme (semester) shall be 'P'.
- A student obtaining grade 'F' shall be considered 'fail' and will be required to reappear in the examination.



SEMESTER I

Semester 1: Course Development Teams

Master of Arts in Artificial Intelligence in Education				
Semester I: Course Development Team: Prof. K. Srinivas (L), Prof. Pradeep Kumar Misra (L)				
Course Code	Course Title	Type	Credits	Lead Faculty
MAAIE 101	Foundations of Education and Artificial Intelligence	Core Course (CC1)	4	Prof. K. Srinivas
MAAIE 102	AI in Educational Policy and Planning	Core Course (CC2)	4	Prof. P. K. Misra
MAAIE 105	AI Ethics and Data Privacy in Education	Skill Enhancement (SEC1)	2	Prof. Amit Gautam
MAAIE 106	AI for Teaching and Learning	Skill Enhancement (SEC2)	2	Prof. K. Srinivas & Dr P. Shankar
SWAYAM EC1	AI & Open-Source Tools for Teaching and Learning (NITTTR)	Elective (SWAYAM)	3	SWAYAM Platform
SWAYAM EC2	Integration of AI in Educational Practices (NITTTR)	Elective (SWAYAM)	3	SWAYAM Platform
SWAYAM EC3	AI in Academic Research (Christ University)	Elective (SWAYAM)	3	SWAYAM Platform

Semester I Credit Summary			
Component	Course Code	Course Title	Credits
Core Course (CC1)	MAAIE 101	Foundations of Education and AI	4
Core Course (CC2)	MAAIE 102	AI in Educational Policy and Planning	4
Skill Enhancement (SEC1)	MAAIE 105	AI Ethics and Data Privacy in Education	2
Skill Enhancement (SEC2)	MAAIE 106	AI for Teaching and Learning	2
SWAYAM Electives (3 courses)	—	3 SWAYAM Online Courses (9 credits → 8 credits allocated)	8
Semester I Total			20

MAAIE (101)

CC1: Foundations of Education and AI

Introduction to the Course

The rapid advancement of Artificial Intelligence (AI) is transforming educational systems, pedagogical practices, and knowledge production globally. This course introduces students to the foundational relationship between education and AI, examining philosophical, sociological, technological, and pedagogical dimensions. It aims to develop a critical understanding of how AI reshapes teaching-learning processes, educational governance, assessment systems, and knowledge equity. The course also focuses on preparing learners to critically engage with AI tools, understand their ethical implications, and apply AI responsibly in educational contexts. It emphasizes the role of educators as informed designers, evaluators, and ethical users of AI-enabled systems.

Course Objectives

This course will prepare students to:

- Understand the conceptual foundations of education and Artificial Intelligence.
- Examine the evolution of educational thought alongside technological advancements.
- Analyse the role of AI in transforming teaching, learning, and assessment.
- Critically evaluate ethical, social, and policy implications of AI in education.
- Develop foundational competencies to integrate AI tools into educational practices.

Learning Outcomes

On completion of the course, students will be able to:

- Explain key concepts, theories, and paradigms in education and AI.
- Analyse the impact of AI on curriculum, pedagogy, and assessment.
- Evaluate AI-based educational tools and platforms critically.
- Design AI-supported learning environments aligned with pedagogical principles.
- Engage in debates on ethics, equity, and governance in AI-driven education systems.

Course Units

Unit 1: Foundations of Education and Artificial Intelligence (Instructional Hours = 15)

This unit explores the philosophical and theoretical foundations of education and introduces the concept of intelligence from human and artificial perspectives. It establishes the conceptual base for understanding AI in education.

- Meaning, nature, and aims of education
- Theories of learning (Behaviourism, Cognitivism, Constructivism, Connectivism)
- Concept of intelligence: human vs artificial intelligence
- Historical evolution of educational technologies
- Relationship between education, knowledge, and technology



Essential Readings

- Bransford, J. D., Brown, A. L., & Cocking, R. R. (2000). *How people learn* (Vol. 11). Washington, DC: National academy press.
- Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. Macmillan.
- Freire, P. (2017). *Pedagogy of the oppressed*. Penguin Classics.
- Gardner, H. (2011). *Frames of mind: The theory of multiple intelligences*. Basic Books.
- Mangal, S. K. (2007). *Advanced educational psychology* (2nd ed.). PHI Learning.
- NITI Aayog. (2018). National Strategy for Artificial Intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>
- Russell, S. J. & Norvig, P. (2010). *Artificial intelligence: A Modern approach* (3rd ed.). Prentice Hall.
- Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*, 2(1), 3–10. <https://static1.squarespace.com/static/6820668911e3e5617c36c48c/t/682dad9690ec5749004d96d/1747824073835/connectivism.pdf>
- UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in Education*. UNESCO Publishing. <https://www.unesco.org/gem-report/en/publication/technology>
- UNESCO. (2025, April 14). *AI and education: Guidance for policy-makers*. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>

Unit 2: Artificial Intelligence in Education (AIED)

(Instructional Hours = 15)

This unit introduces AI technologies and their applications in educational settings, focusing on adaptive learning, intelligent tutoring systems, and data-driven education.

- AI concepts: Machine Learning, Deep Learning, Natural Language Processing (NLP), Generative AI and Large Language Models (LLMs)
- AI applications in education (adaptive systems, chatbots, tutoring systems)
- Learning analytics and data-driven decision-making
- AI tools for teaching and learning
- Opportunities and challenges of AI in education

Essential Readings

- Akpınar, B., Barut, M., Akpınar, E. N., & Balıkçı, H. C. (2025). Lifelong learning supported by artificial intelligence and technology for sustainable development goals: An OECD perspective. *Sustainable Development*, 33(5), 7826-7843.
- Bajpai, G. S., Paul, R., Rai, P., & Singh, A. (Eds.). (2023). *Technology integration in higher education: Opportunities and challenges*. NLU Press
- Charisi, V. (2026). *Artificial intelligence in classrooms: Pedagogical dimensions* (PE 784.574). Policy Department for Citizens, Equality and Culture, Directorate-General for Internal Policies of the Union, European Parliament. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2026/784574/IUST_BRI\(2026\)784574_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2026/784574/IUST_BRI(2026)784574_EN.pdf)
- Khan, S. (2024). *Brave new words: How AI will revolutionize education (and why that's a good thing)*. Penguin Books.
- Liu, C., & Xu, Y. (2025). A visual analysis of the research literature on teachers' digital literacy (2015–2024). *Frontiers in Education*, 10, 1597121. doi: 10.3389/feduc.2025.1597121
- OECD (2021). *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*. OECD Publishing. <https://doi.org/10.1787/589b283f-en>



- Pedró, F., Subosa, M., Rivas, A., & Valverde, P. (2019). *Artificial intelligence in education: Challenges and opportunities for sustainable development*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000366994>
- UNESCO Office in New Delhi. (2022). *State of the education report for India, 2022: Artificial intelligence in education; here, there and everywhere*. UNESCO. <https://doi.org/10.54675/WBOV9023>

Unit 3: Pedagogical Integration of AI

(Instructional Hours = 15)

This unit focuses on how AI can be integrated into pedagogical practices, curriculum design, and instructional strategies.

- AI-supported instructional design (ADDIE, Backward Design with AI tools)
- Personalised and adaptive learning environments
- AI in assessment and feedback systems
- Blended, online, and AI-enhanced learning models
- AI for Special Educational Needs (SEN) and Accessibility
- Role of educators in AI-mediated environments

Essential Readings

- Bowen, J. A., & Watson, C. E. (2024). *Teaching with AI: A practical guide to a new era of human learning*. Johns Hopkins University Press.
- Burns, M., Winthrop, R., Luther, N., Venetis, E., & Karim, R. (2026). *A New Direction for Students in an AI World: Prosper, Prepare, Protect*. Centre for Universal Education at The Brookings Institution.
- https://www.ugc.gov.in/pdfnews/1031121_Guidelines-Innovative-Pedagogical-Approaches-Evaluation-Reforms.pdf
- Luckin, R. (2018). *Machine Learning and Human Intelligence. The future of education for the 21st century*. UCL Institute of Education Press.
- Ministry of Human Resource Development, Government of India. (2020). *PRAGYATA: Guidelines for digital education*. National Council of Educational Research and Training. https://ncert.nic.in/pdf/announcement/PRAGYATA_Guidelines_English.pdf
- UNESCO. (2018). *UNESCO ICT competency framework for teachers (Version 3)*. <https://www.unesco.org/en/articles/unesco-ict-competency-framework-teachers>.
- University Grants Commission. (2020). *Guidelines for Innovative Pedagogical Approaches & Evaluation Reforms*.

Unit 4: Ethics, Policy, and Future of AI in Education

(Instructional Hours = 15)

This unit critically examines ethical, legal, and policy dimensions of AI in education, along with emerging trends and future directions.

- Ethical issues: bias, privacy, surveillance, transparency
- AI and educational equity and inclusion
- Policy frameworks for AI in education (India and global perspectives)
- Data Governance (e.g., GDPR, DPDP Act 2023)
- AI governance and accountability in education
- Future trends: generative AI, immersive learning, AI-human collaboration



Essential Readings

- Digital Personal Data Protection Act, No. 22 of 2023. (2023). Parliament of India. <https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf>
- Hillman, V., Holmes, W., & Duarte, T. (2025). A Rapid Review of AI Literacy Frameworks, with Policy Recommendations. https://www3.weforum.org/docs/WEF_Shaping_the_Future_of_Learning_2024.pdf
- Inam, A. (2025). *Ethics of AI-Driven Personalization in Learning: Designing for Cognitive Diversity and Inclusive Intelligence*. In Artificial Intelligence. IntechOpen. <https://doi.org/10.5772/intechopen.1012981>
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- Maslej, N., Fattorini, L., Perrault,...& Oak, S. (2025). The AI Index 2025 annual report. AI Index Steering Committee, Institute for Human-Centered AI, Stanford University. <https://doi.org/10.48550/arXiv.2504.07139>
- Mignenan, V., & Ndjeder, É. (2025). Open Education and Generative AI: Toward an Ethical and Inclusive Transformation of Pedagogical Strategies. *International Journal of Social Sciences and English Literature*, 9(10), 13-21.
- United Nations Educational, Scientific and Cultural Organization. (2022). *Recommendation on the ethics of artificial intelligence*. UNESCO. https://www.geoethics.org/files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true
- World Economic Forum. (2024). *Shaping the future of learning: The role of AI in Education 4.0*. World Economic Forum.

Course Transaction

- Lectures combined with AI tool demonstrations
- Case studies on AI implementation in education
- Hands-on activities using AI platforms (e.g., adaptive learning tools, generative AI)
- Collaborative discussions and debates
- Project-based learning

Assessment of Learning Outcomes

- Analytical essays and term papers
- Design of AI-integrated lesson plans
- Development of an AI-supported learning module
- Case study analysis
- E-portfolio showcasing AI applications in education

Component	Weightage
Internal Assessment	40%
External Assessment	40%
Experiential Learning	20%



Internal Assessment (Continuous & Formative Evaluation)

- Analytical assignments: Critical essays on AI's role in education
- Concept-based quizzes/tests on foundations of education and AI basics
- Seminar presentations on AI and constructivist learning, AI in assessment
- Reflective journals/learning logs on AI tools explored
- Case study analysis of real-world AI applications
- E-portfolio development compilation

External Assessment (Summative Evaluation)

- End-semester examination: Long analytical answers, case-based problem solving, conceptual essays
- Research-based term paper with literature review and critical analysis
- Viva voce on conceptual understanding and theory-practice connection
- Project evaluation by internal and external examiners

Experiential Assessment (Practice-Oriented & Applied Learning)

- AI tool exploration lab: Hands-on use of intelligent tutoring systems, AI content generators
- Design challenge/Problem-based task: Propose AI-enabled solution to real educational problem
- Field-based inquiry/observation: Study AI integration in schools/EdTech platforms
- Simulation exercises: Role-play as policy maker, educator, AI developer
- Collaborative projects: Develop AI-integrated lesson plan or module

Extended Readings

- Baker, T., Smith, L., & Anissa, N. (2019). *Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges*. NESTA
- Coursera. (n.d.). AI for everyone. <https://www.coursera.org/learn/ai-for-everyone>
- edX. (n.d.). Learn artificial intelligence with online courses and programs. <https://www.edx.org/learn/artificial-intelligence>
- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European journal of education*, 57(4), 542-570.
- Microsoft. (n.d.). AI for education: Resources and learning opportunities. Microsoft Learn. <https://learn.microsoft.com/en-us/training/educator-center/topics/ai-for-education>
- National Digital Library of India. (n.d.). National Digital Library of India. <https://www.ndl.gov.in/>
- National Programme on Technology Enhanced Learning. (n.d.). NPTEL. <https://nptel.ac.in/>



- NITI Aayog. (2018). National Strategy for Artificial Intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>
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- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.

Pedagogical Note

- Integration of theory with practice
- Critical and reflective engagement
- Skill development aligned with emerging technologies
- Preparation for research and professional roles in AI-enabled education



MAAIE 102:

CC2: AI in Educational Policy and Planning

Introduction to the Course

Artificial Intelligence (AI) is rapidly transforming educational systems worldwide, influencing decision-making, governance, and long-term planning. This course is designed to provide postgraduate learners with a critical and analytical understanding of how AI intersects with educational policy and planning processes. It explores the role of AI in shaping access, equity, quality, and efficiency in education systems at local, national, and global levels. The course equips students with the knowledge to analyse AI-driven policy frameworks, interpret data-informed decision-making models, and evaluate the ethical, social, and political implications of AI adoption in education. It also prepares learners to engage with emerging governance models, digital public infrastructures, and policy innovations in AI-enabled education systems.

Course Objectives

This course will prepare students to:

- Explain the role and scope of Artificial Intelligence in educational policy and planning.
- Analyse national and international AI-driven education policies and governance frameworks.
- Examine the use of data, analytics, and predictive modelling in educational planning.
- Critically evaluate ethical, legal, and equity issues in AI-enabled policy environments.
- Develop policy briefs and strategic plans integrating AI tools and approaches.
- Assess the implications of AI for educational reform, innovation, and system transformation.

Learning Outcomes

On completing the course, students will be able to:

- Critically analyse AI applications in educational governance and policy formulation.
- Evaluate AI-driven initiatives in education across different socio-political contexts.
- Design data-informed policy recommendations using AI tools and frameworks.
- Interpret large-scale educational datasets for planning and decision-making.
- Develop ethical and inclusive AI policy frameworks for education.
- Conduct research on AI in educational policy, governance, and planning.

Course Units

Unit 1: Foundations of AI in Educational Policy

(Instructional Hours = 15)

This unit introduces the conceptual foundations of AI and its integration into educational policy ecosystems. It explores how AI reshapes governance, decision-making, and policy discourse.

- Artificial Intelligence: Meaning, types (machine learning, deep learning, generative AI)
- Evolution of AI in education policy and governance
- Theories of policy-making and planning in education
- AI as a tool for evidence-based policymaking
- Global AI policy frameworks in education (e.g., UNESCO, OECD)
- AI and the transformation of educational governance systems



Essential Readings

- Hallström, J., Mannila, L., Nordlöf, C., Heintz, F., Sperling, K., & Stenliden, L. (2026). AI literacy for K–12 education: an international Delphi study. *Interactive Learning Environments*, 1-18.
<https://thedocs.worldbank.org/en/doc/668211606853285174-0090022020/original/BACKGROUNDFutureofLearningEdTechapproachPapers.pdf>
<https://www.unesco.org/gem-report/en/publication/technology>
- OECD (2019). *Artificial Intelligence in Society*. OECD Publishing.
<https://doi.org/10.1787/eedfee77-en>
- UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in Education*. UNESCO Publishing.
- UNESCO. (2025, April 14). AI and education: Guidance for policy-makers.
<https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>
- World Bank. (2020). Realizing the future of learning: From learning poverty to learning for everyone, everywhere.

Unit 2: Data, Analytics, and AI for Educational Planning (Instructional Hours = 15)

This unit focuses on the role of data and AI-driven analytics in educational planning, forecasting, and system management.

- Big data in education: Sources and types (EMIS, learning analytics, administrative data)
- Predictive analytics for enrolment, retention, and performance
- AI tools for resource allocation and system optimization
- Data visualization and decision-support systems
- AI in monitoring and evaluation of education systems
- Case studies: AI in large-scale education planning (India, Finland, Singapore)
- Assessing Digital Infrastructure and Interoperability Standards

Essential Readings

- OECD Digital Education Outlook 2023 (Chapter 11: Interoperability) and The International Telecommunication Union (ITU)s 2025 working paper, Building the Case for a Digital Public Infrastructure for Education.
- Romero, C., Ventura, S., Pechenizkiy, M., & Baker, R.S.J.D. (Eds.). (2010). *Handbook of Educational Data Mining (1st ed.)*. CRC Press. <https://doi.org/10.1201/b10274>
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- UNESCO. (n.d.) UNESCO Institute for Statistics Reports.
<https://www.uis.unesco.org/en/publications>
- United Nations Educational, Scientific and Cultural Organization. (2024). AI competency framework for teachers. <https://unesdoc.unesco.org/ark:/48223/pf0000391104>
- World Bank. (2018). World development report 2018: Learning to realize education's promise. World Bank. <https://www.worldbank.org/en/publication/wdr2018>
- Yılmaz, A., Tekin, M.Z., Koç, A., Altun, R., & Aydın, M. (2025). Artificial Intelligence In Educational Management: Current Research, *International Journal of Eurasian Education and Culture*, 10(29), 157-179.



Unit 3: AI, Equity, Ethics, and Policy Challenges

(Instructional Hours = 15)

This unit critically examines the ethical, social, and legal implications of AI in education policy.

- Ethical frameworks for AI in education
- Bias, fairness, and accountability in AI systems
- Data privacy, surveillance, and governance
- AI and educational inequalities (digital divide, algorithmic exclusion)
- Regulatory frameworks and policy safeguards
- Responsible AI and human-centered policy design

Essential Readings

- Eubanks, V. (2018). *Automating inequality: How high-tech tools profile, police, and punish the poor*. St. Martin's Press.
- European Commission, High-Level Expert Group on Artificial Intelligence. (2019). *Ethics guidelines for trustworthy AI*. European Commission. https://ai.bsa.org/wp-content/uploads/2019/09/AIHLEG_EthicsGuidelinesforTrustworthyAI-ENpdf.pdf
- Haidar, A. (2026). Ethics without teeth? Challenges and opportunities in AI declarations for platform governance. *Journal of Theoretical and Applied Electronic Commerce Research*, 21(4), 103.
- Mignenan, V. (2025). *Generative AI & Open Education: Ethical, Inclusive, and Contextually Grounded Pedagogy*. CMJ Publishers.
- Stahl, B. C., Schroeder, D., & Rodrigues, R. (2023). *Ethics of artificial intelligence: Case studies and options for addressing ethical challenges*. Springer Nature.
- United Nations Educational, Scientific and Cultural Organization. (2022). *Recommendation on the ethics of artificial intelligence*. UNESCO. https://www.geoethics.org/files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true
- Wilk, A. (2019). *Teaching AI, Ethics, Law and Policy*. Arxiv. <https://arxiv.org/pdf/1904.12470>

Unit 4: AI-driven Educational Reforms and Future Policy Directions (Instructional Hours = 15)

This unit explores emerging trends, innovations, and future trajectories of AI in educational policy and planning.

- AI in national education missions and digital public infrastructure (e.g., India's DIKSHA)
- Smart education systems and adaptive governance
- AI in higher education policy and lifelong learning systems
- Public-private partnerships in AI and education
- Funding Models, Public Procurement Strategies, and Vendor Management for EdTech/AI
- Scenario planning and future forecasting using AI
- Designing AI-integrated education policies and strategic frameworks



Essential Readings

- Holmes, W. (2020). Artificial intelligence in education. In *Encyclopedia of education and information technologies*. (88-103). Cham: Springer International Publishing.
- Lee, J., & Dai, Y. (2025). Artificial Intelligence and Data-Driven Technology in the Public Policy Cycle: Comparative Applications, Opportunities, and Risks. *Journal of Comparative Policy Analysis: Research and Practice*, 27(5-6), 477-493.
- Li, Y., Tolosa, L., Rivas-Echeverria, F., & Marquez, R. (2025). *Integrating AI in education: Navigating UNESCO global guidelines, emerging trends, and its intersection with sustainable development goals*. ChemRxiv. <https://chemrxiv.org/doi/pdf/10.26434/chemrxiv-2025-wz4n9-v2?redirectToLatest=false>
- NITI Aayog. (2018). National Strategy for Artificial Intelligence. <https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf>
- OECD. (2021). *OECD Digital Education Outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots*. OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/06/oecd-digital-education-outlook-2021_0f1487d9/589b283f-en.pdf
- OECD. (2023). *OECD Digital Education Outlook 2023: Towards an Effective Digital Education Ecosystem*, OECD Publishing, Paris, <https://doi.org/10.1787/c74f03de-en>.
- United Nations Educational, Scientific and Cultural Organization. (2022). Recommendation on the ethics of artificial intelligence. UNESCO. https://www.geoethics.org/files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true
- Wisaeng, K., & Kaewkiriya, T. (2026). The Influence of AI Competency and Soft Skills on Innovative University Competency: An Integrated SEM–Artificial Neural Network (SEM–ANN) Model. *Data*, 11(5), 95. <https://doi.org/10.3390/data11050095>
- Zhang, L., Yang, C., & Zheng, Y. (2026). Digital competence for sustainable education of pre-service teachers: a systematic literature review (2014-2024). *Frontiers in psychology*, 16, 1710983. <https://doi.org/10.3389/fpsyg.2025.1710983>

Course Transaction

- Lectures combined with policy analysis and case-based discussions
- Hands-on engagement with AI tools for data analysis and visualization
- Policy simulation exercises and scenario planning workshops
- Group discussions on global and national AI policy developments
- Expert talks from policymakers and EdTech practitioners

Assessment of Learning Outcomes

- Policy analysis essays and research papers
- Development of an AI-integrated education policy brief
- Case study presentations on AI in education systems
- Data analysis project using AI tools
- Reflective journals on ethical and policy implications
- End-semester examination



Component	Weightage
Internal Assessment	40%
External Assessment	40%
Experiential Learning	20%

Internal Assessment (Formative & Continuous Evaluation)

- Policy analysis briefs on existing education policies integrating AI
- Thematic position papers on AI and educational equity, data governance, algorithmic bias
- Seminar presentations on global AI policy trends, comparative policy frameworks
- Case study analysis of real AI-based governance initiatives
- Reflective policy journal linking theory to practice

External Assessment (Summative Evaluation)

- End-semester written examination: Analytical and essay-type questions
- Policy design project (capstone): Design a comprehensive AI-integrated education policy
- Viva voce: Oral defence of policy project

Experiential Assessment (Practice-Based & Applied Learning)

- Policy lab/simulation exercise: Simulate roles as policy makers, administrators, technologists
- Field engagement/institutional study of AI adoption in schools/HEIs
- Stakeholder consultation exercise: Interviews with educators, administrators, EdTech providers
- AI policy hackathon/design sprint for innovative policy solutions

Extended Readings

- Luckin, R. (2018). Machine Learning and Human Intelligence. The future of education for the 21st century. UCL Institute of Education Press.
- Open Access Theses and Dissertations. (n.d.). Open Access Theses and Dissertations. <https://oatd.org/>
- Oxford University Press. (n.d.). Open access. Oxford Academic. https://academic.oup.com/journals/pages/open_access
- SWAYAM. (n.d.). SWAYAM. <https://www.swayam.gov.in/>
- World Economic Forum Reports on AI and Education. <https://www.weforum.org/publications/>



Pedagogical Note

- Critical inquiry, policy analysis, interdisciplinary thinking, and research orientation
- Extends beyond technical understanding to governance and societal implications
- Aligned with NEP 2020 focus on multidisciplinary and experiential learning
- Moves beyond rote learning to policy design and evaluation
- Integrates AI literacy with governance competence



MAAIE 105:

SEC1: AI Ethics and Data Privacy in Education

Introduction to the Course

With the rapid integration of Artificial Intelligence (AI) into educational ecosystems—ranging from adaptive learning systems to predictive analytics—critical concerns around ethics, accountability, and data privacy have emerged. Educational institutions increasingly rely on data-driven technologies that collect, process, and interpret sensitive learner information. This necessitates a strong ethical and regulatory framework to ensure responsible AI adoption. This course aims to develop ethical reasoning, data governance awareness, and responsible AI practices among postgraduate learners. It prepares students to critically evaluate AI tools used in education, understand privacy risks, and design ethically compliant educational solutions. The course also emphasizes aligning AI practices with principles of equity, fairness, transparency, and learner rights, ensuring that technological innovation does not compromise human values.

Course Objectives

This course will prepare students to:

- Understand foundational concepts of AI ethics and data privacy in educational contexts.
- Examine ethical challenges associated with AI-driven decision-making in education.
- Analyse national and international data protection frameworks and policies.
- Develop competencies to evaluate and implement privacy-aware AI systems.
- Apply ethical principles in the design and deployment of AI-based educational tools.

Learning Outcomes

On completing the course, the students will be able to:

- Understand the origins of development theories
- Analyse the theories of development in the post-world war period in terms of various opposing strands of thought
- Develop an understanding of human development as the cornerstone of the development process
- Develop an understanding of various debates on development in India

Course Units

Unit 1: Foundations of AI Ethics in Education

(Instructional Hours = 08)

This unit introduces ethical frameworks and philosophical foundations guiding AI use in education. It explores how AI systems influence decision-making, autonomy, and equity in learning environments.

- Meaning and scope of AI ethics
- Ethical theories: Utilitarianism, Deontology, Virtue Ethics in AI
- AI in education: Opportunities vs ethical dilemmas
- Algorithmic bias and fairness in educational tools
- Transparency, explainability, and accountability



Essential Readings

- Floridi L, Cowls J, Beltrametti M,...& Vayena E. AI4People-An Ethical Framework for a Good AI Society: Opportunities, Risks, Principles, and Recommendations. *Minds Mach (Dordr)*. 2018;28(4):689-707. <https://doi.org/10.1007/s11023-018-9482-5>
- Holmes, W., & Porayska-Pomsta, K. (2022). The ethics of artificial intelligence in education. *Lontoo: Routledge*, 621-653.<https://doi.org/10.4324/9780429329067>
- Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., ... & Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide framework. *International journal of artificial intelligence in education*, 32(3), 504-526. <https://doi.org/10.1007/s40593-021-00239-1>.
- Schiff, D. (2022). Education for AI, not AI for education: The role of education and ethics in national AI policy strategies. *International Journal of Artificial Intelligence in Education*, 32(3), 527-563.<https://doi.org/10.1007/s40593-021-00270-2>
- UNESCO. (2022). *Recommendation on the ethics of artificial intelligence*. <https://unesdoc.unesco.org/ark:/48223/pf0000380455.locale=en>

Unit 2: Data Privacy and Protection in Educational Contexts (Instructional Hours = 07)

This unit focuses on data governance, learner privacy, and legal frameworks regulating data use in education.

- Types of educational data (personal, behavioural, biometric)
- Data lifecycle: Collection, storage, processing, sharing
- Privacy risks in EdTech platforms
- Legal frameworks: GDPR, Indian Digital Personal Data Protection Act (DPDP), FERPA (overview)
- Consent, anonymisation, and data minimisation principles.

Essential Readings

- Abraham, S., Hickok, E., Sinha, A., Barooah, S., Mohandas, S., Bidare, P. M., ... & Kumar, S. (2019). NITI Aayog Discussion Paper: An aspirational step towards India's AI policy. *Centre for Internet and Society*.
- European Commission (n.d.). *GDPR Guidelines* https://commission.europa.eu/law/law-topic/data-protection_en
- Government of India. (2023). *Digital Personal Data Protection Act, 2023 (No. 22 of 2023)*. <https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf>
- Muli, M. (2024). Legal and ethical implications of data privacy in artificial intelligence: A review of data privacy among learners in Kenyan secondary schools. *Journal of the Kenya National Commission for UNESCO*, 5(1).
- OECD (2023). *OECD digital education outlook 2023: Towards an effective digital education ecosystem*. <https://doi.org/10.1787/c74f03de-en>
- OECD (n.d.). *Data governance*. <https://www.oecd.org/en/topics/sub-issues/data-governance.html>
- Vincent-Lancrin, S., & González-Sancho, C. (2023). Data and technology governance: Fostering trust in the use of data. *OECD digital education outlook 2023: Towards an effective digital education ecosystem*. <https://doi.org/10.1787/c74f03de-en>



Unit 3: Ethical AI Practices and Risk Mitigation

(Instructional Hours = 07)

This unit equips learners with practical strategies to ensure ethical AI implementation and mitigate risks.

- Ethical AI design principles (Fairness, Accountability, Transparency–FAT)
- Bias detection and mitigation techniques
- Responsible AI auditing and impact assessment
- Data security and breach management
- Ethical dilemmas in AI-based student assessment and surveillance

Essential Readings

- IEEE (2019). *Ethically aligned design: A vision for prioritizing human well-being with autonomous and intelligent systems* (1st ed.). IEEE. <https://engagestandards.ieee.org/rs/211-FYL-955/images/EAD1e.pdf>
- Digital Personal Data Protection Act, No. 22 of 2023. (2023). Parliament of India. <https://www.meity.gov.in/static/uploads/2024/06/2bf1f0e9f04e6fb4f8fef35e82c42aa5.pdf>
- Douglas, D. M., Lacey, J., & Howard, D. (2025). Ethical risk for AI. *AI and Ethics*, 5(3), 2189-2203. <https://doi.org/10.1007/s43681-024-00549-9>
- Holmes, W., Porayska-Pomsta, K., Holstein, K., Sutherland, E., Baker, T., Shum, S. B., ... & Koedinger, K. R. (2022). Ethics of AI in education: Towards a community-wide framework. *International Journal of Artificial Intelligence in Education*, 32(3), 504-526.
- UNESCO. (2025, April 14). *AI and education: Guidance for policy-makers*. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>

Unit 4: Applied Ethics and Policy in AI-enabled Education

(Instructional Hours = 08)

This unit emphasizes application through case studies, institutional policies, and governance frameworks.

- Case studies of AI misuse and ethical breaches in education
- Institutional data governance policies
- Ethical guidelines for EdTech companies and educators
- AI for inclusion vs risks of digital divide
- Developing ethical AI policy frameworks for educational institution

Essential Readings

- World Bank (2021). Digital technologies in education.
- World Bank (2024). AI Revolution in Education.
- UNICEF (2020). Policy Guidance on AI and Children.
- UNICEF (2025). Guidance on AI and Children: Version 3.0.
- NITI Aayog (2018). AI for All: National strategy for artificial intelligence.
- NITI Aayog (2021). Principles for responsible artificial intelligence.



Course Transaction

- Interactive lectures with real-world case analysis
- Scenario-based ethical decision-making exercises
- Hands-on evaluation of AI tools for ethical compliance
- Group discussions on policy and governance issues
- Mini-projects on ethical AI framework design

Assessment of Learning Outcomes

- Case study analysis (ethical dilemmas)
- Reflective journals on AI ethics
- Short assignments on privacy frameworks
- Written examination (application-oriented questions)
- Policy critique or analytical essay
- Development of an Ethical AI Use Framework for an Educational Institution
- Audit report of an AI-based educational tool

Component	Weightage
Internal Assessment	40%
External Assessment	40%
Experiential Learning	20%

Extended Readings

- Mittelstadt, B. (2019). Principles alone cannot guarantee ethical AI. *Nature machine intelligence*, 1(11), 501-507.
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.
- Zuboff, S. (2024). The age of surveillance capitalism: The fight for a human future at the new frontier of power. *Journal of Information Ethics*, 33(1), 84-85.

Skill Enhancement Focus

- Ethical reasoning and critical thinking
- Data governance and compliance awareness
- AI literacy in educational contexts
- Policy analysis and institutional decision-making skills

Key Pedagogical Features

- Aligned with the pedagogical philosophy of integrating responsibility with technological advancement
- Prepares postgraduate learners to become ethically informed practitioners and policymakers in AI-enabled education systems
- Ensures that innovation is guided by human values, legal safeguards, and social responsibility



MAAIE106: SEC2: AI for Teaching and Learning

Introduction to the Course

Artificial Intelligence (AI) is rapidly transforming educational practices by enabling personalized learning, intelligent content generation, adaptive assessment, and data-driven decision-making. This course is designed to equip postgraduate learners with practical competencies and critical understanding of AI tools and applications in teaching and learning contexts. The course focuses on developing hands-on skills, pedagogical integration strategies, and ethical awareness required to effectively use AI in educational settings. It also emphasizes responsible and reflective use of AI, ensuring alignment with educational goals such as access, equity, quality, and inclusion. Unlike broad theoretical courses, this skill enhancement course prioritizes applied learning, enabling students to design AI-supported instructional practices and learning environments relevant to real-world educational contexts.

Course Objectives

This course will prepare students to:

- Understand the fundamentals and scope of AI in education.
- Explore and use AI-powered tools for teaching, learning, and assessment.
- Design AI-supported instructional strategies and learning resources.
- Critically examine ethical, pedagogical, and social implications of AI in education.
- Develop practical competencies for integrating AI into professional teaching practice.

Learning Outcomes

Upon successful completion of the course, students will be able to:

- Apply AI tools to design teaching-learning materials and activities.
- Develop AI-assisted lesson plans aligned with learning outcomes.
- Use AI for formative and summative assessment practices.
- Evaluate AI tools for pedagogical effectiveness and ethical compliance.
- Demonstrate responsible and reflective use of AI in educational contexts.

Course Units

Unit 1: Foundations of AI in Education

(Instructional Hours = 08)

This unit introduces the basic concepts of artificial intelligence and its relevance to teaching and learning. It situates AI within contemporary educational transformations and policy discourse.

- Meaning, types, and evolution of AI (Generative AI, Machine Learning, NLP)
- AI in education: Concepts, scope, and applications
- Role of AI in transforming teaching-learning processes
- Overview of AI initiatives in education (India and global)
- Opportunities and challenges of AI in education

Essential Readings

- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Centre for Curriculum Redesign.
- Keerthana, M., Shetty, M. S., & Ramkumar, N. (2024). Overview of Innovations in AI Education in India: School, Teachers and Students.
- Khan, S. (2024). *Brave new words: How AI will revolutionize education (and why that's a good thing)*. Penguin Books
- Mundlamuri, R., Gunnam, G. R., Mysari, N. K., & Pujuri, J. (2025). The Evolution of AI: From Classical Machine Learning to Modern Large Language Models. *IEEE Access*.
- Xu, T., Tong, R., Liang, J., Fan, X., Li, H., & Wen, Q. (2024). Foundation models for education: Promises and prospects. <https://doi.org/10.48550/arXiv.2405.10959>

Unit 2: AI Tools for Teaching and Content Creation (Instructional Hours= 10)

This unit emphasizes hands-on engagement with AI tools that support instructional design, content generation, and learner engagement.

- AI tools for lesson planning and instructional design
- AI for content creation (text, images, presentations, videos)
- AI-enabled interactive teaching tools (chatbots, tutors)
- Prompt engineering for educators
- Designing AI-supported learning activities

Essential Readings

- Bowen, J. A., & Watson, C. E. (2024). *Teaching with AI: A practical guide to a new era of human learning*. Johns Hopkins University Press.
- Kayabaş, İ. (2024). Innovative Curriculum Development and Content Creation With Generative AI. *Transforming Education With Generative AI: Prompt Engineering and Synthetic Content Creation*, 462–473. <https://doi.org/10.4018/979-8-3693-1351-0.CH022>
- Qian, Y. (2025). Prompt engineering in education: A systematic review of approaches and educational applications. *Journal of Educational Computing Research*, 63(7-8), 1782-1818.



Unit 3: AI in Assessment and Personalized Learning

(Instructional Hours = 06)

This unit explores how AI can enhance assessment practices and support personalized learning pathways.

- AI for formative and summative assessment
- Automated feedback systems
- Adaptive learning platforms
- Learning analytics and data-informed teaching
- Academic integrity and AI

Essential Readings

- Laak, K., & Aru, J. (2024). AI and personalized learning: bridging the gap with modern educational goals. *ArXiv*, *abs/2404.02798*.
- Rekha, K., Gopal, K., Satheeskumar, D., Anand, U. A., Doss, D. S. S., & Elayaperumal, S. (2024). Ai-Powered Personalized Learning System Design: Student Engagement and Performance Tracking System. In *2024 4th International Conference on Advance Computing and Innovative Technologies in Engineering*. (1125-1130). IEEE. <https://doi.org/10.1109/ICACITE60783.2024.10617155>
- Vorobyeva, K. I., Belous, S., Savchenko, N. V., Smirnova, L. M., Nikitina, S. A., & Zhdanov, S. P. (2025). Personalized learning through AI: Pedagogical approaches and critical insights. *Contemporary Educational Technology*, 17(2). <https://doi.org/10.30935/cedtech/16108>

Unit 4: Ethics, Governance, and Future of AI in Education

(Instructional Hours = 06)

This unit develops critical awareness of ethical, social, and policy implications of AI in education.

- Ethical issues: bias, privacy, transparency, accountability
- Responsible and inclusive AI use in education
- AI policies and frameworks in education
- Future trends: AI tutors, immersive learning, intelligent systems
- Teacher roles in AI-enabled environments

Essential Readings

- OECD. (2021). *OECD Digital Education Outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots*. OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/06/oecd-digital-education-outlook-2021_0f1487d9/589b283f-en.pdf
- Pedró, F., Subosa, M., Rivas, A., & Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000366994>
- UNESCO Office in New Delhi. (2022). *State of the education report for India, 2022: Artificial intelligence in education; here, there and everywhere*. UNESCO. <https://doi.org/10.54675/WBOV9023>
- UNESCO. (2025, April 14). *AI and education: Guidance for policy-makers*. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>



Course Transaction

- Hands-on workshops using AI tools
- Demonstrations and guided practice sessions
- Collaborative design tasks and peer learning
- Case-based discussions on AI in education
- Blended learning (synchronous + asynchronous engagement)

Assessment of Learning Outcomes

- AI-based lesson plan design
- Practical assignments using AI tools
- Reflective journal on AI use
- Participation and engagement
- Practical examination (AI tool application)
- Viva voce on pedagogical integration of AI
- Development of an AI-integrated teaching portfolio

Component	Weightage
Internal Assessment	40%
External Assessment	40%
Experiential/Portfolio-Based Assessment	20%

Extended Readings

- IBM. (n.d.). *IBM SkillsBuild*. <https://skillsbuild.org/>
- Khan Academy. (n.d.). *AI for education*. <https://www.khanacademy.org/college-careers-more/ai-for-education>
- Miao, F., & Holmes, W. (2023). *Guidance for generative AI in education and research*. <https://unesdoc.unesco.org/ark:/48223/pf0000386693>
- MIT OpenCourseWare. (n.d.). *MIT OpenCourseWare*. Massachusetts Institute of Technology. <https://ocw.mit.edu/>
- OECD. (2026). *OECD digital education outlook 2026: Exploring effective uses of generative AI in education*. OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2026/01/oecd-digital-education-outlook-2026_940e0dd8/062a7394-en.pdf
- Schiff, D. (2022). Education for AI, Not AI for Education: The Role of Education and Ethics in National AI Policy Strategies. *International Journal of Artificial Intelligence in Education*, 32, 527-563. <https://doi.org/10.1007/s40593-021-00270-2>
- University of Helsinki. (n.d.). *Elements of AI*. <https://www.elementsofai.com/>

Key Pedagogical Features

- Practice-oriented and competency-based
- Focus on real-world application
- Integration of theory with hands-on tasks
- Emphasis on ethical and critical perspectives
- Portfolio-based evidence of learning



SWAYAM Elective Courses

As part of the MAAIE programme structure, 40% of the elective courses are offered through the SWAYAM platform (Online Courses). In Semester I, students will undertake three SWAYAM elective courses, generating a total of 9 credits. From these 9 credits, 8 credits are allocated towards the Semester I total of 20 credits, in compliance with the programme's credit distribution framework.

The SWAYAM courses are designed to complement the face-to-face core and skill enhancement courses by providing specialized online learning opportunities. These courses are offered through the national SWAYAM MOOC platform and are mentored through dedicated slots in the weekly academic schedule. The daily routine includes a dedicated 03:00–04:00 PM slot for SWAYAM courses and mentoring, ensuring that students receive adequate guidance and support throughout their online learning experience.

Semester I SWAYAM Course Allocation

SWAYAM Slot	Course Title	Credits	Platform
Monday	AI & Open Source Tools for teaching and Learning (NITTTR)	3	SWAYAM
Tuesday	Integration of AI in Educational Practices	3	SWAYAM
Wednesday	AI in Academic Research (Christ University)	3	SWAYAM
Thursday	Revision of all 3 Courses	8	SWAYAM

Credit Calculation

The three SWAYAM courses generate a total of 9 credits (3 + 3 + 3). As per the programme's credit distribution framework, 40% of the SWAYAM component is counted towards the semester credit total. Therefore, 8 credits out of the 9 SWAYAM credits are allocated towards the Semester I total of 20 credits. The remaining credit from SWAYAM contributes to the overall programme credit pool. This arrangement ensures that students benefit from the breadth of online course offerings while maintaining the integrity of the programme's credit structure and academic rigour.

SWAYAM Mentoring and Support

Each SWAYAM course is supported by a dedicated mentoring session as part of the weekly academic schedule. Faculty members provide guidance, facilitate discussions, and address student queries during the designated SWAYAM slot (2:00–4:00 PM). The Thursday SWAYAM slot is additionally dedicated to weekly quizzes and discussion forum activities, ensuring continuous engagement and assessment throughout the semester. Students are expected to complete all SWAYAM course requirements, including online assignments, quizzes, and final examinations as prescribed by the respective SWAYAM course providers

30-Day Internship Guidelines

Post-Semester I Field Immersion Framework

Purpose & Overview

The 30-day internship is designed to translate the foundational theory of Semester I—Educational Policy (NEP 2020), AI Ethics & Data Privacy (DPDP), and AI for Teaching & Learning—into authentic professional practice.

Duration: 30 Working Days (Post-Semester I Examination)

Host Organizations: EdTech Firms, K–12 Schools, Higher Education Institutions (HEIs), Educational NGOs, and Curriculum/Research Bodies (e.g., NCERT, SCERT, NIEPA, CIET).

30-Day Phased Activity Roadmap

Week 1 (Days 1–6): Institutional Immersion & Policy Alignment

- Survey host tech infrastructure (LMS, smart classrooms, student databases).
- Map institutional digital practices against national policies (e.g., NEP 2020) and assess digital readiness among teachers and learners.

Week 2 (Days 7–12): AI Ethics & Data Privacy Audit

- Map student data flows to identify privacy risks (benchmarked against the DPDP Act / global standards).
- Evaluate institutional AI tools for algorithmic bias and draft an Institutional GenAI Acceptable Use Policy.

Week 3 (Days 13–18): Pedagogical Design & Open-Source AI Deployment

- Select a specific syllabus unit to design an AI-enhanced instructional module.
- Build prompt workflows, adaptive learning materials, or a low-code educational chatbot/tutor using open-source tools.

Week 4 (Days 19–24): Pilot Testing & Research Data Collection

- Pilot-test the AI learning intervention with a small cohort of learners or teachers.
- Collect user feedback on pedagogical accuracy, AI hallucinations, and user experience.

Week 5 (Days 25–30): Synthesis, Reporting & Knowledge Transfer

- Draft a 3-page Executive Policy & Implementation Brief for the host organization.
- Finalize the comprehensive internship report and deliver an exit presentation to host mentors and academic evaluators.



SEMESTER II

Semester 2: Course Development Teams

Master of Arts in Artificial Intelligence in Education				
Semester II: Course Development Team: Prof. K. Srinivas (L), Prof. Pradeep Kumar Misra (L)				
Course Code	Course Title	Type	Credits	Lead Faculty
MAAIE 103	AI in Educational Research	Core Course (CC3)	4	Prof. K. Srinivas
MAAIE 104	AI in Educational Administration and Finance	Core Course (CC4)	4	Prof. P. K. Misra
MAAIE 107	AI for Curriculum Design	Skill Enhancement (SEC3)	2	Prof. K. Srinivas
MAAIE 108	AI for Instructional Design	Skill Enhancement (SEC4)	2	Prof. K. Srinivas
SWAYAM EC4	To be Announced	Elective (SWAYAM)	4	SWAYAM Platform
SWAYAM EC5	To be Announced	Elective (SWAYAM)	4	SWAYAM Platform

Semester II Credit Summary

Component	Course Code	Course Title	Credits
Core Course (CC3)	MAAIE 103	AI in Educational Research	4
Core Course (CC4)	MAAIE 104	AI in Educational Administration and Finance	4
Skill Enhancement (SEC3)	MAAIE 107	AI for Curriculum Design	2
Skill Enhancement (SEC4)	MAAIE 108	AI for Instructional Design	2
SWAYAM Electives (2 courses)	—	2 SWAYAM Online Courses	8
Semester II Total			20

MAAIE (103)

CC3: AI in Educational Research

Introduction to the Course

Artificial Intelligence (AI) is transforming the landscape of educational research by enabling advanced data analysis, predictive modelling, automation of research processes, and generation of insights at scale. This course aims to develop a critical and applied understanding of AI in educational research contexts. It equips postgraduate learners with conceptual foundations, methodological competencies, and ethical awareness required to integrate AI tools and techniques into research design, data collection, analysis, and dissemination. The course emphasizes both opportunities and limitations of AI, encouraging students to critically examine algorithmic biases, data ethics, and implications for equity in education. It also prepares learners to use AI responsibly for evidence-based decision-making and innovation in educational research.

Course Objectives

This course will enable students to:

- Understand the foundations and evolution of AI in research.
- Examine the role of AI in transforming educational research methodologies.
- Apply AI tools for data collection, analysis, and interpretation.
- Critically evaluate ethical, legal, and social implications of AI in research.
- Design AI-integrated research studies in education.
- Explore emerging trends such as generative AI, learning analytics, and predictive modelling.

Learning Outcomes

Upon completion of the course, students will be able to:

- Critically analyse the use of AI in educational research contexts.
- Design research proposals incorporating AI tools and techniques.
- Use AI tools for qualitative and quantitative data analysis.
- Evaluate ethical concerns including bias, privacy, and transparency in AI-based research.
- Conduct small-scale AI-supported research studies.
- Interpret and communicate AI-driven research findings effectively.

Course Units

Unit 1: Foundations of AI in Educational Research (Instructional Hours: 15)

This unit introduces the conceptual foundations of AI and its relevance to educational research. It explores how AI intersects with traditional research paradigms and methodologies.

Key Topics:

- Artificial Intelligence: Meaning, types (Machine Learning, Deep Learning, NLP), applications
- Introduction to research automation

- Evolution of AI in research and education
- Role of AI in knowledge generation and research transformation
- AI vs traditional research methods
- Overview of AI tools used in educational research (e.g., text mining, analytics platforms)

Essential Readings:

- Bowen, J. A., & Watson, C. E. (2025). *Teaching with AI: A practical guide to a new era of human learning*. JHU Press.
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education* https://doi.org/10.1007/978-3-319-60013-0_107-1
- OECD (2019). *Artificial Intelligence in Society*
- Russell, S. J. & Norvig, P. (2010). *Artificial intelligence: A Modern approach* (3rd ed.). Prentice Hall.
- Woolf, B., Arroyo, I., Lan, A., Garn, M., & Dede, C. (2022). Data-directed education: The future of AI in education. In *NSF Convergence Accelerator Ideation Workshop: Final Report*, National Science Foundation.

Unit 2: AI Tools and Techniques for Educational Research (Instructional Hours: 15)

This unit focuses on practical applications of AI tools for data collection, processing, and analysis in educational research.

Key Topics:

- Introduction to generative AI and prompt engineering for research support
- AI tools for literature review (e.g., semantic search, AI summarizers)
- Data collection using AI (chatbots, automated surveys)
- Natural Language Processing (NLP) for qualitative research
- Machine Learning techniques for quantitative analysis
- Learning analytics and educational data mining
- Visualization tools and dashboards

Essential Readings:

- Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: student and teacher perceptions and usage of digital media. *International journal of educational technology in higher education*, 15(1), 48. <https://doi.org/10.1186/s41239-018-0130-1>
- Bowen, J. A., & Watson, C. E. (2025). *Teaching with AI: A practical guide to a new era of human learning*. JHU Press.
- Čolić, V., Sukić, E., & Anđelković, M. (2025). AI-Supported Learning Methodologies: Theoretical Review and Empirical Research on the Educational Process Impact. *TEM Journal*, 14(4), 3714. <https://doi.org/10.18421/TEM144-75>
- Siemens, G., & Baker, R. (2012). Learning analytics and educational data mining: Towards communication and collaboration. <https://doi.org/10.1145/2330601.2330661>
- Younas, M., El-Dakhs, D. A. S., & Noor, U. (2025, November). The impact of artificial intelligence-based learning tools in academic innovation: a review of Deep seek, GPT, and Gemini (2020–2025). In *Frontiers in Education* (Vol. 10, p. 1689205). Frontiers. <https://doi.org/10.3389/educ.2025.1689205>

Unit 3: Research Design and Methodology using AI (Instructional Hours: 15)

This unit enables students to integrate AI into research design and methodology, including mixed-methods approaches.

Key Topics:

- Educational research approaches and educational research designs
- AI-supported research design (exploratory, experimental, predictive)
- Mixed methods research with AI integration
- Designing AI-driven surveys and instruments
- Data preprocessing and model selection
- Validity, reliability, and reproducibility in AI-based research
- Case studies of AI-based educational research

Essential Readings:

- Agrawal, A., McHale, J., & Oettl, A. (2024). Artificial intelligence and scientific discovery: A model of prioritized search. *Research Policy*, 53(5), 104989. <https://doi.org/10.1016/j.respol.2024.104989>
- Baker, R. S. (2019). Challenges for the future of educational data mining: The Baker learning analytics prizes. *Journal of educational data mining*, 11(1), 1-17.
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Creswell, J.W. *Research Design*
- Selected case studies on AI in education research
- UNESCO. (2023). *Global Education Monitoring Report 2023: Technology in Education*. UNESCO Publishing. <https://www.unesco.org/gem-report/en/publication/technology>
- Wiley, D., & Hilton, J. L. (2018). Defining OER-enabled pedagogy. *International Review of Research in Open and Distributed Learning*, 19(4). <https://doi.org/10.19173/irrodl.v19i4.3601>

Unit 4: Ethics, Policy, and Future Directions of AI in Educational Research (Instructional Hours: 15)

This unit critically examines ethical, legal, and policy dimensions of AI use in educational research.

Key Topics:

- Ethical Foundations and Research Misconduct in AI: Bias, fairness, transparency, accountability, ethical decision-making
- Research misconduct: fabrication, falsification, and plagiarism (FFP).
- Data privacy, security, and consent in AI assisted research
- AI Policy, governance, and regulation of AI in educational research
- Responsible and human centred AI in Education
- AI, equity, and inclusion in educational research
- Future directions of AI in educational research: generative AI, adaptive research systems, AI-human collaboration
- Researcher readiness in AI assisted research

Essential Readings:

- Floridi, L. (2023). The ethics of artificial intelligence: Principles, challenges, and opportunities.
- Hillman, V., Holmes, W., & Duarte, T. (2025). A Rapid Review of AI Literacy Frameworks, with Policy Recommendations.
- OECD AI Principles
- UNESCO. (2025, April 14). *AI and education: Guidance for policy-makers*. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>
- United Nations Educational, Scientific and Cultural Organization. (2022). *Recommendation on the ethics of artificial intelligence*. UNESCO. https://www.geoethics.org/files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true

Course Transaction

- Lectures and guided discussions
- Hands-on workshops with AI tools
- Case study analysis
- Research labs and practical exercises
- Collaborative projects and peer learning
- Blended learning (online and face-to-face)

Assessment of Learning Outcomes

- Research proposal integrating AI tools
- Practical assignments using AI tools
- Critical review of AI-based research articles
- Development of a mini-AI-supported research project
- Oral presentations and viva
- E-portfolio documenting learning and tool usage

1. Internal Assessment (Continuous & Formative Evaluation)

Internal assessment focuses on **progressive skill development**, critical engagement with AI tools, and research design competencies.

a. Research Concept Note

- Identification of a research problem in education where AI can be applied
- Clear articulation of research questions, objectives, and rationale
- Integration of AI tools (e.g., predictive analytics, NLP for text analysis)
- Expected output: 1500–2000-word concept paper

Assessment Criteria:

- Relevance and originality
- Conceptual clarity
- Feasibility of AI integration

b. AI Tool-Based Data Analysis Assignment

- Hands-on use of AI tools (e.g., automated coding, sentiment analysis, learning analytics platforms)
- Students analyse a dataset (quantitative/qualitative) and interpret findings

Assessment Criteria:

- Tool selection and justification
- Accuracy of analysis
- Interpretation and academic rigor

c. Critical Review of AI in Educational Research

- Review 5-8 recent research papers on AI applications in education
- Focus on methodology, ethical considerations, and validity

Assessment Criteria:

- Depth of critique
- Understanding of AI research methods
- Ability to synthesize literature

d. Seminar Presentation

- Presentation on emerging trends (e.g., AI in learning analytics, adaptive testing, generative AI in research)

Assessment Criteria:

- Conceptual depth
- Use of evidence
- Communication and engagement

2. External Assessment (Summative Evaluation)

External evaluation emphasizes **theoretical grounding, methodological understanding, and critical thinking**.

Written Examination**Format:**

- Long analytical essays
- Case-based questions
- Application-oriented questions

Sample Areas:

- AI methodologies in educational research
- Ethical implications of AI-driven research
- Comparative analysis of traditional vs AI-based research methods

Research Proposal Submission

- Full-fledged research proposal integrating AI methods

Components:

- Problem statement
- Literature review
- Methodology (with AI integration)
- Data sources and tools
- Ethical considerations

Assessment Criteria:

- Research design quality
- Methodological appropriateness
- Innovation in AI use

3. Experiential Assessment (Practice-Oriented & Applied Learning)

Experiential components ensure real-world application, innovation, and research practice.

AI-Enabled Mini Research Project

- Students conduct a small-scale research study using AI tools

Examples:

- Predicting student performance using datasets
- AI-based thematic analysis of interview transcripts
- Chatbot-assisted survey analysis

Outputs:

- Research report (3000–4000 words)
- Dataset and analysis documentation

Assessment Criteria:

- Application of AI tools
- Research rigor
- Validity and reliability

Research Lab / Practicum Portfolio

- Documentation of hands-on activities across the semester

Includes:

- Tool experimentation logs
- Data analysis outputs
- Reflection on learning

Assessment Criteria:

- Consistency and engagement
- Skill development
- Reflective depth

Viva Voce / Project Defense

- Oral defence of research project

Assessment Criteria:

- Conceptual clarity
- Justification of AI methods
- Ability to respond to critical questions

Distinctive Features of the Assessment Design

- Balanced integration of theory, practice, and innovation
- Continuous and competency-based evaluation
- Encourages publication-oriented research outputs
- Focus on research ethics and responsible AI use
- Strong emphasis on AI tool application in real research contexts

Extended Readings

- Bardhan, R. & Acharya, K. (2025). Reimagining higher education with AI (First Edition). Krishna Publication House.
- Holmes, W. & Tuomi, I. (2022). State of AI in education
<http://storage.googleapis.com/uniquecourses/online.html>
- <https://cybergogythiyagu.blogspot.com/>
- <https://shodhganga.inflibnet.ac.in/>
- Luckin, R. (2018). *Machine Learning and Human Intelligence. The future of education for the 21st century*. UCL institute of education press.
- Selwyn, N. (2019). *Should robots replace teachers?: AI and the future of education*. John Wiley & Sons.
- 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(1), 39.

Pedagogical Note

- Integrates conceptual, applied and ethical dimensions
- Balances theory with hands-on AI tool usage
- Encourages critical reflection and research innovation
- Focuses on real-world educational research applications
- Embeds policy and societal perspectives

MAAIE (104)

CC4: AI in Educational Administration and Finance

Introduction to the Course

Artificial Intelligence (AI) is transforming governance, decision-making, and resource optimization across sectors, including education. In educational administration and finance, AI enables predictive analytics, automation of administrative workflows, intelligent budgeting, fraud detection, and data-driven policy formulation. This course is designed to equip postgraduate learners with advanced conceptual, analytical, and applied competencies to integrate AI tools and systems into educational governance and financial management. It focuses on enhancing institutional efficiency, transparency, accountability, and strategic planning through AI-driven systems. The course also critically engages with ethical, legal, and socio-political implications of AI adoption in educational administration, including concerns related to data privacy, algorithmic bias, and digital governance. Learners will develop the ability to evaluate AI applications and design context-sensitive solutions for institutional and systemic challenges.

Course Objectives

This course will enable students to:

- Understand the role of AI in transforming educational administration and financial systems.
- Analyse governance frameworks and decision-making processes enhanced by AI technologies.
- Apply AI tools for institutional planning, budgeting, auditing, and resource allocation.
- Critically evaluate ethical, legal, and policy implications of AI in educational governance.
- Design AI-based solutions for administrative efficiency and financial transparency.

Learning Outcomes

On completion of this course, students will be able to:

- Evaluate AI-driven administrative systems in educational institutions.
- Develop AI-supported models for budgeting, forecasting, and financial decision-making.
- Analyse large-scale educational datasets for policy and governance insights.
- Design frameworks for AI integration in institutional administration.
- Assess ethical, legal, and governance challenges in AI deployment.
- Conduct applied research in AI-based educational management systems.

Course Units

Unit 1: Foundations of AI in Educational Administration (Instructional Hours: 15)

This unit introduces the conceptual foundations of AI and its relevance to educational administration. It explores how AI supports decision-making, institutional governance, and system-level reforms.

Key Topics:

- Meaning, scope, applications and types of AI (machine learning, deep learning, NLP)

- Evolution of administrative systems in education
- AI in governance: Concepts of smart administration and digital governance
- Decision support systems and predictive analytics in education
- AI applications in student information systems and institutional dashboards
- National initiatives on digital governance in education (India and global contexts)

Essential Readings

- Kaware, S. S., & Behera, P. K. (2025). *Artificial intelligence (AI) in education: Innovations, trends and applications*.
- National initiatives like PM e-Vidya, DIKSHA, SWAYAM, E-Pathshala.
- Organisation for Economic Co-operation and Development. (2023). *Country Digital Education Ecosystems and Governance: A Companion to Digital Education Outlook 2023*. OECD Publishing.
- Russell, S., & Norvig, P. (2022). *Artificial intelligence: A modern approach* (4th ed.). Pearson Education.
- Stükelberger, C., Merchán Rocamora, M., Singh, D., & Duggal, P. (2024). *AI governance ethics: Artificial intelligence with shared values and rules*. Globethics Global Series. <https://doi.org/10.58863/20.500.12424/4318987>
- Tegmark, M. (2017). *Life 3.0: Being human in the age of artificial intelligence*. Alfred A. Knopf.
- Udupa, P. (2022). Application of artificial intelligence for university information system. *Engineering Applications of Artificial Intelligence*, 114, 105038. <https://doi.org/10.1016/j.engappai.2022.105038>

Unit 2: AI for Educational Planning and Management (Instructional Hours: 15)

This unit focuses on the application of AI in planning, monitoring, and management of educational institutions and systems.

Key Topics:

- AI-driven educational planning and forecasting (enrolment, infrastructure, staffing)
- Learning analytics for institutional decision-making
- AI-based performance management systems
- Intelligent resource allocation and scheduling
- Large scale data and AI for educational policy and strategic planning
- AI applications for quality assurance, accreditation, faculty workload optimization, classroom management, infrastructure planning, strategic resource planning and ranking analytics
- Case studies: AI in school and higher education management systems

Essential Readings:

- Alotaibi, N. S. (2024). The impact of AI and LMS integration on the future of higher education: Opportunities, challenges, and strategies for transformation. *Sustainability*, 16(23), 10357. <https://doi.org/10.3390/su162310357>
- Garov, A. K., Awasthi, A. K., & Shikha, D. (2026). AI-Driven Predictive Analytics for Enhancing Student Success and Retention. In *Innovating Credentialing and Data Management in Higher Education with Blockchain and AI* (pp. 207-242). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-7600-4.ch007>
- Onum Friday Okoh (2026). The Role of Artificial Intelligence Tools in Enhancing Educational Planning and Resource Allocation in Senior Secondary Schools and Universities in Nigeria. *Education and Learning in Developing Nations*, 4(1): 32-41.
- Wang, Y. (2016). Big opportunities and big concerns of big data in education. *TechTrends*, 60(4), 381-384. <https://doi.org/10.1007/s11528-016-0072-1>



Unit 3: AI in Educational Finance and Resource Optimization (Instructional Hours: 15)

This unit explores AI applications in financial management, budgeting, auditing, and transparency in education systems.

Key Topics:

- Fundamentals of educational finance and budgeting
- AI tools for financial forecasting and budget optimization
- Automated financial management systems (ERP, AI-integrated MIS)
- Fraud detection and risk management using AI
- Blockchain and AI in financial transparency and accountability.
- Blockchain and governance, smart contracts, decentralized financial auditing, credential financing, transparent grant management, institutional accountability.
- Public finance, funding models, and AI-driven allocation systems
- Case studies: AI in institutional and government-level financial systems

Essential Readings:

- Akther, A., Arobee, A., Adnan, A. A., Auyon, O., Islam, A. S. M., & Akter, F. (2025). Blockchain As a Platform for Artificial Intelligence (AI) Transparency. *arXiv preprint arXiv:2503.08699*. <https://doi.org/10.4236/jcc.2026.148005>
- Cardona, M. A., Rodríguez, R. J., & Ishmael, K. (2023). *Artificial intelligence and the future of teaching and learning: Insights and recommendations*. US Department of Education, Office of Educational Technology.
- Osetskiy, V., Vitrenko, A., Tatomyr, I., Bilan, S., & Hirnyk, Y. (2020). Artificial intelligence application in education: Financial implications and prospects. *Financial and credit activity problems of theory and practice*, 2(33), 574-584. <https://doi.org/10.18371/fcaptp.v2i33.207246>
- Peerzada, S. A., Padhy, N., Sheetlani, J., & Hassan, G. (2020, March). Predict the Performance of Students and School on Educational Database (U-DISE). In *2020 International Conference on Computer Science, Engineering and Applications (ICCSEA)* (pp. 1-6). IEEE. <https://doi.org/10.1109/ICCSEA49143.2020.9132930>

Unit 4: Ethics, Policy, and Future of AI in Educational Governance (Instructional Hours: 15)

This unit critically examines ethical, legal, and policy dimensions of AI use in educational administration and finance.

Key Topics:

- Ethical issues: Bias, fairness, accountability, transparency
- Data privacy, surveillance, and governance concerns
- AI policies in education (India, UNESCO, OECD frameworks)
- Legal or regulatory frameworks for AI in public administration
- AI for inclusive, equitable, and accessible governance
- Responsible use of AI in budgeting, resource allocation, and institutional support
- Future directions: Autonomous institutions, AI-driven policy making, emerging challenges and future institutional models

Essential Readings:

- Durak, G., Çankaya, S., & Sharples, M. (Eds.). (2026). *Generative AI in education: Theories, applications, and ethical frontiers*. Springer. <https://doi.org/10.1007/978-981-95-4871-2>
- Holmes, W., & Porayska-Pomsta, K. (2023). *The ethics of artificial intelligence in education: Practices, challenges, and debates* (1st ed.). Routledge. <https://doi.org/10.4324/9780429329067-1>
- Government of India (2020). National Education Policy 2020. https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Schiff, D. (2022). Education for AI, not AI for education: The role of education and ethics in national AI policy strategies. *International Journal of Artificial Intelligence in Education*, 32(3), 527-563. <https://doi.org/10.1007/s40593-021-00270-2>
- Umoke, C. C., Nwangbo, S. O., & Onwe, O. A. (2025). The governance of AI in education: Developing ethical policy frameworks for adaptive learning technologies. *International Journal of Applied Science and Mathematical Theory*, 11(2), 71-88.
- United Nations Educational, Scientific and Cultural Organization. (2022). Recommendation on the ethics of artificial intelligence. UNESCO. https://www.geoethics.org/_files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true

Course Transaction

- Lectures and seminars on conceptual and policy frameworks
- Hands-on training in AI tools (analytics dashboards, financial software, predictive models)
- Case study analysis (national and international examples)
- Simulations and project-based learning
- Group discussions and policy debates

Assessment of Learning Outcomes

- Analytical essays and policy briefs
- Case study evaluations
- Development of AI-based administrative/financial models
- Practical assignments using datasets and AI tools
- Research project or capstone presentation
- E-portfolio documenting AI applications

Internal Assessment (Continuous & Formative Evaluation)

These assessments emphasise continuous engagement, critical thinking, and applied understanding of AI in administration and finance.

a. Analytical Assignments

- **Task:** Critically analyse AI applications in school/university administration (e.g., admissions automation, predictive analytics for dropout prevention)
- **Output:** 2000–2500-word report
- **Focus:** Conceptual clarity + contextual application

b. Case Study Analysis

- **Task:** Evaluate real-world AI-based administrative systems (e.g., ERP systems, AI budgeting tools)
- **Components:**
 - Problem context



- AI solution used
- Efficiency gains & risks
- **Assessment Criteria:** Analytical depth, evidence use, decision-making

c. Data Interpretation Exercises

- **Task:** Analyse datasets related to:
 - Institutional finance
 - Student performance
 - Resource allocation
- **Tools:** Excel / Power BI / AI dashboards
- **Outcome:** Data-driven decision-making skills

d. Seminar Presentation

- **Themes:**
 - AI in financial forecasting
 - Smart governance in education
 - AI-driven institutional planning
- **Mode:** Individual / group
- **Focus:** Communication + conceptual synthesis

e. Reflective Journal

- Weekly reflections on:
 - AI tools explored
 - Ethical dilemmas in AI governance
 - Learning insights
- Encourages **metacognition and professional thinking**

External Assessment (Summative Evaluation)

Designed to assess theoretical grounding, analytical ability, and integrative understanding.

a. End-Semester Examination

- **Format:**
 - Section A: Short answers (conceptual clarity)
 - Section B: Analytical essays
 - Section C: Case-based problem solving
- **Sample Areas:**
 - AI in budgeting and financial optimisation
 - Governance frameworks for AI in education
 - Risk and compliance in AI systems

b. Policy Analysis Paper

- **Task:** Critically review policies such as:
 - NITI Aayog AI strategy
 - UNESCO AI in education guidelines
- **Focus:** Policy implications for administration & finance
- **Output:** Structured academic paper

c. Viva Voce

- Evaluation of:
 - Conceptual understanding
 - Practical application
 - Ethical reasoning
- Can be linked to project/portfolio work

Experiential Assessment (Practice-Oriented & Applied Learning)

a. AI-Based Administrative Project

- **Task:** Design an AI solution for:
 - Institutional finance management
 - Automated student information systems
 - Resource optimisation
- **Deliverables:**
 - Problem statement
 - AI model/workflow
 - Implementation plan

b. Financial Simulation Exercise

- Simulate:
 - Budget allocation using AI tools
 - Predictive financial planning
- **Tools:** Spreadsheet models, AI forecasting tools
- **Outcome:** Decision-making under constraints

c. Institutional Audit (Field-Based / Virtual)

- **Task:** Evaluate an institution's use of AI in administration
- **Components:**
 - Infrastructure audit
 - Data governance practices
 - Financial efficiency
- **Output:** Audit report + recommendations

d. Internship / Industry Engagement

- With:
 - EdTech companies
 - Educational institutions using AI
- **Assessment:**
 - Supervisor feedback
 - Reflective report
 - Presentation

e. Capstone Portfolio

- Compilation of:
 - Assignments



- Project outputs
- Reflections
- Demonstrates **holistic competency development**

Distinctive Features of the Assessment Design

- Authenticity: Real-world administrative and financial scenarios
- Integration: AI, governance and finance
- Ethics-driven: Responsible AI use in institutions
- Skill-based: Data literacy, decision-making, leadership
- Continuous feedback: Iterative improvement

Extended Readings

- Adeniyi, A. C., & Okusi, O. (2024). Ethical AI governance, financing, and human well-being in the 21st century. *African Journal of Humanities and Contemporary Education Research*, 17(1), 193-205. <https://doi.org/10.62154/ajhcer.2024.017.010504>
- Brynjolfsson, E., & McAfee, A. N. D. R. E. W. (2017). The business of artificial intelligence. *Harvard business review*, 7(1), 1-2.
- Central Institute of Educational Technology, NCERT. *Online and digital education in the lens of NEP 2020*.
- Filgueiras, F. (2024). Artificial intelligence and education governance. *Education, Citizenship and Social Justice*, 19(3), 349-361. <https://doi.org/10.1177/17461979231160674>
- <https://www.cambridge.org/core/what-we-publish/open-access>
- <https://www.highwirepress.com/>
- Kshetri, N. (2021). The role of artificial intelligence in promoting financial inclusion in developing countries. *Journal of Global Information Technology Management*, 24(1), 1-6. <https://doi.org/10.1080/1097198X.2021.1871273>
- Luckin, R. (2018). *Machine Learning and Human Intelligence. The future of education for the 21st century*. UCL institute of education press
- Mariam, G., Adil, L., & Zakaria, B. (2024). The integration of artificial intelligence (ai) into education systems and its impact on the governance of higher education institutions. *International Journal of Professional Business Review: Int. J. Prof. Bus. Rev.*, 9(12), 13. <https://doi.org/10.26668/businessreview/2024.v9i12.5176>
- Miao, F., & Holmes, W. (2021). *AI and education: A guidance for policymakers*. Unesco Publishing.
- OECD (2019). *Artificial Intelligence in Society*. OECD Publishing. <https://doi.org/10.1787/eedfee77-en>
- Pérez, L. E. G. AI IN ECONOMICS AND FINANCE EDUCATION: INNOVATIONS, CHALLENGES AND FUTURE DIRECTIONS.
- Reimers, F., Azim, Z., Palomo, M. R., & Thony, C. (2025). AI and Education Governance. In *Artificial Intelligence and Education in the Global South: A Systems Perspective* (pp. 135-156). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-11449-5_8
- UNESCO. (2025, April 14). *AI and education: Guidance for policy-makers*. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>
- World Bank (2020). *Artificial Intelligence in the Public Sector: Maximizing Opportunities, Managing Risks*.

Pedagogical Note

The structure of this course:

- Integrates conceptual understanding and applied practice
- Emphasizes policy, ethics, and real-world relevance
- Promotes research orientation and professional competencies
- Aligns with emerging interdisciplinary domains (AI, Education, Governance)



MAAIE (107)

SEC3: AI for Curriculum Design

Introduction to the Course

Artificial Intelligence (AI) is rapidly transforming curriculum design by enabling data-informed, adaptive, and personalized learning experiences. In contemporary education systems, curriculum is no longer static; it is dynamic, responsive, and increasingly co-created using intelligent tools. This course introduces postgraduate learners to the conceptual foundations and practical applications of AI in curriculum design. The course focuses on equipping learners with competencies to design, develop, and evaluate curricula using AI-powered tools and frameworks. It emphasizes aligning learning outcomes, pedagogy, and assessment through AI-assisted processes while critically examining ethical, pedagogical, and contextual implications. Further, the course prepares students to act as reflective curriculum designers capable of leveraging AI for inclusive, equitable, and future-ready education systems. A strong emphasis is placed on hands-on skill development, real-world applications, and responsible AI use in educational contexts.

Course Objectives

This course will enable students to:

- Understand the role and scope of AI in curriculum design and development
- Apply AI tools for outcome-based curriculum planning and mapping
- Design AI-supported instructional strategies and learning experiences
- Critically examine ethical, pedagogical, and policy implications of AI in curriculum
- Develop practical competencies in AI-assisted curriculum prototyping

Learning Outcomes

On successful completion of the course, students will be able to:

- Design curriculum frameworks using AI-supported tools and techniques
- Align learning outcomes, content, pedagogy, and assessment using AI models
- Develop AI-assisted lesson plans, modules, and instructional materials
- Evaluate curriculum effectiveness using data-driven insights
- Demonstrate ethical and responsible use of AI in curriculum design

Course Units

Unit 1: Foundations of AI in Curriculum Design (Instructional Hours = 8)

This unit introduces the conceptual foundations of curriculum design and explores how AI is reshaping traditional approaches. It situates AI within outcome-based education, competency frameworks, and curriculum theories.

Key Topics:

- Curriculum design: Concepts, principles, and models (Tyler, Taba, Backward Design)
- Introduction to AI in education: Scope and capabilities
- Role of AI in curriculum planning and development

- Outcome-based education and competency mapping
- AI and personalization in curriculum

Essential Readings:

- Admane, R., Sawale, P. S., Jayasree, R., Kurup, S. J., & Thomas, S. A. (2024). Artificial Intelligence in Education: Tailoring Curriculum to Individual Student Needs through AI-Based Systems. *Library of progress-library science, information technology & computer*, 44(3).
- Bhatia, S. K., & Jindal, S. (2023). A textbook of curriculum, pedagogy and evaluation. Paragon International Publishers.
- Bhuttah, T. M., Xiaoduan, C., Ullah, H., & Javed, S. (2019). Analysis of curriculum development stages from the perspective of Tyler, Taba and Wheeler. *European Journal of Social Sciences*, 58(1), 14-22.
- Ejjami, R. (2024). The future of learning: AI-based curriculum development. *International Journal for Multidisciplinary Research*, 6(4), 1-31. <https://doi.org/10.36948/ijfmr.2024.v06i04.24441>
- Fu, B., He, Y., Li, Y., & Yao, Y. (2025). An Exploration of the Outcome-Based Education Teaching Model Driven by Dual Knowledge and Competency Frameworks. *Journal of Modern Educational Theory and Practice*, 2(11). <https://doi.org/10.70767/jmetp.v2i11.885>
- Lunenburg, F. C. (2011). Curriculum development: Inductive models. *Schooling*, 2(1), 1-8.
- Mounkoro, I., Khawaji, T., Ocampo, D. M., Cadelina, F. A., Uberas, A. D., Mowafaq, F., ... & Galingana, C. D. (2024). Artificial Intelligence in Education: Redefining Curriculum Design and Optimizing Learning Outcomes Through Data-Driven Personalization. *Library of Progress-Library Science, Information Technology & Computer*, 44(4).
- Reimers, F., Azim, Z., Palomo, M. R., & Thony, C. (2025). AI and Curriculum. In *Artificial Intelligence and Education in the Global South: A Systems Perspective* (pp. 53-73). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-032-11449-5_4
- Shandia Dewi, E. (2023). Curriculum Development Models. *Sumatra Journal of Disaster, Geography and Geography Education*, 7(1), 125-130. <https://doi.org/10.24036/sjdgge.v7i1.525>
- UNESCO. (2025, April 14). AI and education: Guidance for policy-makers. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>
- Wiggins, G. P., & McTighe, J. (2005). *Understanding by design*. Ascd.

Unit 2: AI Tools and Techniques for Curriculum Development (Instructional Hours = 10)

This unit focuses on practical engagement with AI tools used in curriculum design, including generative AI, curriculum mapping tools, and learning analytics platforms.

Key Topics:

- AI-powered curriculum design tools (e.g., generative AI, LLMs)
- Prompt engineering for curriculum design
- AI for syllabus development and course structuring
- Curriculum mapping and alignment using AI
- AI tools for content creation (text, multimedia, assessments)

Essential Readings:

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- Davidson, D. A. (2025). Creating a course syllabus and lesson plan using ChatGPT: Some considerations. *Caribbean Journal of Education and Development*, 1(2), 132-152. <https://doi.org/10.46425/cjed50102164>
- Holmes, W., et al. (2019). Artificial Intelligence in Education: Promise and Implications. https://doi.org/10.1007/978-3-319-60013-0_107-1
- Imamguluyev, R., Hasanova, P., Imanova, T., Mammadova, A., Hajizada, S., & Samadova, Z. (2024). AI-powered educational tools: Transforming learning in the digital era. *International Research Journal of Modernization in Engineering Technology and Science*, 6, 920-929.
- Luckin, R. (2018). *Machine Learning and Human Intelligence. The future of education for the 21st century*. UCL Institute of Education Press.
- Ma, Y., Su, Y., Li, M., Zhang, Y., Chai, W., Huang, A., & Zhao, X. (2025). Preparing students for an AI-driven world: Generative AI and curriculum reform in higher education. *Frontiers of Digital Education*, 2(4), 30. <https://doi.org/10.1007/s44366-025-0067-6>
- Shaw, M. P., & Devgun, M. P. (2025). AI in Content Creation. *International Journal for Multidisciplinary Research (IJFMR)*, 7(3), 1-9. <https://doi.org/10.36948/ijfmr.2025.v07i03.45053>

Unit 3: Instructional Design and Assessment using AI (Instructional Hours = 8)

This unit integrates AI into instructional design and assessment practices, focusing on adaptive learning, automated assessment, and feedback systems.

Key Topics:

- AI-supported instructional design models (ADDIE, Backward Design with AI)
- Designing AI-assisted lesson plans and modules
- AI for formative and summative assessment
- Adaptive learning systems and personalized pathways
- Learning analytics for curriculum improvement

Essential Readings:

- Dockens, A. L., & Shelton, K. (2026). AI for Formative and Summative Assessment: A Balanced Approach. In *Emerging Trends, Global Perspectives, and Systemic Transformation in AI* (pp. 353-386). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3373-5102-5.ch013>
- Jiao, H., & Lissitz, R. W. (Eds.). (2020). Application of artificial intelligence to assessment. Information Age Publishing. <https://doi.org/10.1108/978-1-64113-953-3>
- OECD (2021). *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*. OECD Publishing. <https://doi.org/10.1787/589b283f-en>
- Siemens, G. (2013). Learning analytics: The emergence of a discipline. *American behavioral scientist*, 57(10), 1380-1400. <https://doi.org/10.1177/0002764213498851>
- Ussainova, G., Seitmuratov, A., Issayeva, G., Shamsudinova, G., & Zhanseitova, L. (2025). Redesigning Instructional Design with an AI-Incorporated ADDIE Model for 21st Century Education. *Journal of Curriculum Studies Research*, 7(2), 498-521. <https://doi.org/10.46303/jcsr.2025.31>

Unit 4: Ethics, Policy, and Future Directions in AI Curriculum Design (Instructional Hours = 4)

This unit critically examines ethical concerns, governance issues, and future trends in AI-driven curriculum systems.

Key Topics:

- Ethical issues: Bias, transparency, accountability
- Data privacy and security in AI-based curriculum systems
- Policy frameworks for AI in education (India and global perspectives)
- Future trends: Generative AI, intelligent tutoring systems, curriculum automation
- Responsible AI practices in education

Essential Readings:

- Government of India (2020). National Education Policy 2020. https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf
- Sirine, B., Pupo, F., Chen, M., & Giancarlo, F. (2025). A Meta-Survey of Generative AI in Education: Trends, Challenges, and Research Directions. *Big Data and Cognitive Computing*, 9(9), 237. <https://doi.org/10.3390/bdcc9090237>
- United Nations Educational, Scientific and Cultural Organization. (2022). *Recommendation on the ethics of artificial intelligence*. UNESCO. https://www.geoethics.org/files/ugd/5195a5_56fc787932864ee199e73208ee6784ec.pdf?index=true

Course Transaction

The course will be delivered through:

- Hands-on workshops using AI tools for curriculum design
- Demonstrations of AI applications in instructional planning
- Case-based discussions and scenario analysis
- Collaborative design projects and peer reviews
- Blended learning (synchronous and asynchronous engagement)

Assessment of Learning Outcomes

Assessment will emphasize applied competencies and practical outputs:

Internal Assessment (40%)

- AI-assisted curriculum design assignment
- Prompt design and tool application exercises
- Reflective journal on AI use in curriculum

External Assessment (40%)

- Project: Design a complete AI-supported course/module
- Viva voce on design rationale and tool use

Experiential / Skill-Based Assessment (20%)

- Development of an AI-generated curriculum prototype
- E-portfolio showcasing tools, outputs, and reflections



Extended Readings

- Baker, T., Smith, L., & Anissa, N. (2019). Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges.
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. John Wiley & Sons.
- Tomczyk, Ł. (2024, November). AI in Education-Mapping Theoretical Frameworks for Digital Literacy: DigComp 2.2, AI Literacy Competency Framework, AI Literacy TPACK, the Machine Learning Education Framework, the UNESCO AI Competency Framework for and Teachers and Other Innovative Approaches. In *International Conference on New Media Pedagogy* (pp. 173-191). Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-95627-0_12
- UNESCO. (2021). AI Competency Framework for Teachers
- Williamson, B. (2017). *Big data in education: The digital future of learning, policy and practice*. SAGE Publications Ltd. <https://doi.org/10.4135/9781529714920>

Course Outcome Orientation

This Skill Enhancement Course is designed to:

- Bridge theory and practice in AI-enabled curriculum design
- Prepare future educators, instructional designers, and policy professionals
- Promote innovation, adaptability, and ethical responsibility
- Enable learners to design future-ready, technology-integrated curricula

MAAIE (108)

SEC4: AI for Instructional Design

Introduction to the Course

Artificial Intelligence (AI) is rapidly transforming instructional design by enabling data-driven, adaptive, and personalized learning experiences. This course introduces postgraduate learners to the integration of AI tools and techniques within instructional design processes. It emphasizes the application of AI in analysing learner needs, designing content, automating instructional workflows, and enhancing learner engagement. The course envisions developing practical competencies in leveraging AI for designing effective learning environments across face-to-face, online, and blended contexts. It also foregrounds ethical considerations, critical evaluation of AI tools, and responsible innovation in educational practice. Through hands-on activities and project-based learning, students will gain experience in creating AI-supported instructional designs suited to diverse educational settings.

Course Objectives

This course will enable students to:

- Understand the role and scope of AI in instructional design.
- Apply instructional design models integrated with AI tools.
- Analyse learner data to inform AI-driven instructional decisions.
- Design AI-supported learning experiences and digital content.
- Critically evaluate ethical, pedagogical, and social implications of AI in education.
- Develop practical skills for using AI tools in real-world educational contexts.

Learning Outcomes

On completion of the course, students will be able to:

- Design instructional modules using AI-supported frameworks.
- Develop adaptive and personalized learning pathways using AI tools.
- Create AI-assisted learning materials (e.g., content, assessments, multimedia).
- Evaluate AI tools for pedagogical effectiveness and ethical compliance.
- Integrate AI into instructional planning for diverse learning environments.

Course Units

Unit 1: Foundations of AI in Instructional Design (Instructional Hours = 08)

This unit introduces the intersection of AI and instructional design. It explores how traditional instructional design models are evolving with AI integration and how AI enhances decision-making in teaching-learning processes.

Key Topics:



- Instructional design: Concepts, principles, and models (ADDIE, Backward Design)
- Introduction to AI in education: Concepts and applications
- Role of AI in instructional design lifecycle
- AI-driven learning analytics and learner profiling
- Opportunities and challenges of AI integration

Essential Readings:

- Holmes, W. (2020). Artificial intelligence in education. In *Encyclopedia of education and information technologies* (pp. 88-103). Cham: Springer International Publishing.
- OECD (2021), AI and the Future of Skills, Volume 1: Capabilities and Assessments, Educational Research and Innovation, OECD Publishing, Paris.
- OECD (2022), AI and the Future of Skills Understanding the educational and work implications of AI and robotics.
- Pedro, F., Subosa, M., Rivas, A., & Valverde, P. (2019). Artificial intelligence in education: Challenges and opportunities for sustainable development.
- Siemens, G. (2013). Learning analytics: The emergence of a discipline. *American behavioral scientist*, 57(10), 1380-1400. <https://doi.org/10.1177/0002764213498851>

Unit 2: AI Tools and Technologies for Instructional Design (Instructional Hours = 10)

This unit focuses on practical exposure to AI tools used in instructional design and content creation. It emphasizes tool selection, usability, and pedagogical alignment.

Key Topics:

- AI-powered content generation tools (text, image, video)
- AI for instructional planning and lesson design
- Intelligent tutoring systems and chatbots
- AI tools for assessment and feedback
- Learning Management Systems with AI integration

Essential Readings:

- Elnaffar, S., Rashidi, F., & Abualkishik, A. Z. (2025). Teaching with AI: a systematic review of chatbots, generative tools, and tutoring systems in programming education. *arXiv preprint arXiv:2510.03884*.
- Luckin, R. (2018). *Machine Learning and Human Intelligence. The future of education for the 21st century*. UCL institute of education press.
- UNESCO. (2025, April 14). AI and education: Guidance for policy-makers. <https://www.unesco.org/en/articles/ai-and-education-guidance-policy-makers>

Unit 3: Designing AI-Enhanced Learning Experiences (Instructional Hours = 10)

This unit focuses on applying AI tools to design learner-centered and adaptive instructional environments.

Key Topics:

- Personalized and adaptive learning systems



- AI in formative and summative assessment design
- Designing interactive and engaging AI-supported learning activities
- Universal Design for Learning (UDL) with AI support
- Case studies of AI in instructional design

Essential Readings:

- Baker, T., Smith, L., & Anissa, N. (2019). Educ-AI-tion rebooted? Exploring the future of artificial intelligence in schools and colleges.
- Bray, A., Devitt, A., Banks, J., Sanchez Fuentes, S., Sandoval, M., Riviou, K., ... & Terrenzio, S. (2024). What next for Universal Design for Learning? A systematic literature review of technology in UDL implementations at second level. *British Journal of Educational Technology*, 55(1), 113-138. <https://doi.org/10.1111/bjet.13328>
- Rose, D. & Meyer, A. (2002). Teaching Every Student in the Digital Age.

Unit 4: Ethics, Evaluation, and Future Directions (Instructional Hours = 6)

This unit critically examines ethical, social, and professional considerations in using AI for instructional design.

Key Topics:

- Ethical issues: Bias, privacy, transparency, accountability
- Evaluating AI tools for educational effectiveness
- AI policies and frameworks in education
- Future trends: Generative AI, immersive learning, automation
- Responsible use of AI in instructional practice

Essential Readings:

- Floridi, L., Cowls, J., Beltrametti, M., Chatila, R., Chazerand, P., Dignum, V., ... & Vayena, E. (2018). AI4People—An ethical framework for a good AI society: Opportunities, risks, principles, and recommendations. *Minds and machines*, 28(4), 689-707. <https://doi.org/10.1007/s11023-018-9482-5>
- UNESCO. (2019). *Beijing consensus on artificial intelligence and education*. UNESCO.

Course Transaction

- Hands-on workshops using AI tools for instructional design
- Project-based learning and real-world problem-solving
- Blended learning (synchronous and asynchronous modes)
- Demonstrations and guided practice with AI platforms
- Peer collaboration and reflective discussions

Assessment of Learning Outcomes

Internal Assessment (40%)

- AI-based lesson design assignment
- Tool-based practical exercises
- Reflective journal on AI use in instructional design



- Participation in workshops and discussions

External Assessment (40%)

- Project submission: AI-integrated instructional design module
- Viva voce / presentation

Experiential Assessment (20%)

- Development of an AI-supported e-learning artifact
- Portfolio showcasing AI tools and outputs
- Case analysis of AI implementation in education

Extended Readings

- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European journal of education*, 57(4), 542-570. <https://doi.org/10.1111/ejed.12533>
- Schwab, K., & Zahidi, S. (2020). *The Global Competitiveness Report–How countries are performing on the road to recovery*. World Economic Forum.
- Selwyn, N. (2019). *Should robots replace teachers?: AI and the future of education*. John Wiley & Sons.
- 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(1), 39. <https://doi.org/10.1186/s41239-019-0171-0>

SWAYAM Elective Courses

As part of the MAAIE programme structure, 40% of the elective courses are offered through the SWAYAM platform (Online Courses). In Semester II, students will undertake two SWAYAM elective courses, generating a total of 8 credits. These 8 credits are allocated towards the Semester II total of 20 credits, in compliance with the programme's credit distribution framework.

The SWAYAM courses are designed to complement the face-to-face core and skill enhancement courses by providing specialized online learning opportunities. These courses are offered through the national SWAYAM MOOC platform and are mentored through dedicated slots in the weekly academic schedule. The daily routine includes a dedicated 03:00–04:00 PM slot for SWAYAM courses and mentoring, ensuring that students receive adequate guidance and support throughout their online learning experience.

Semester II SWAYAM Course Allocation

SWAYAM Slot	Course Title	Credits	Platform
Monday	To be Announced	4	SWAYAM
Tuesday	To be Announced	4	SWAYAM
Wednesday	Revision of 2 Courses	8	SWAYAM
Thursday	Revision of 2 Courses	8	SWAYAM

Credit Calculation

The three SWAYAM courses generate a total of 8 credits. As per the programme's credit distribution framework, 40% of the SWAYAM component is counted towards the semester credit total. Therefore, 8 credits are allocated towards the Semester II total of 20 credits. This arrangement ensures that students benefit from the breadth of online course offerings while maintaining the integrity of the programme's credit structure and academic rigour.

SWAYAM Mentoring and Support

Each SWAYAM course is supported by a dedicated mentoring session as part of the weekly academic schedule. Faculty members provide guidance, facilitate discussions, and address student queries during the designated SWAYAM slot (3:00–4:00 PM). The Thursday SWAYAM slot is additionally dedicated to weekly quizzes and discussion forum activities, ensuring continuous engagement and assessment throughout the semester. Students are expected to complete all SWAYAM course requirements, including online assignments, quizzes, and final examinations as prescribed by the respective SWAYAM course providers



30-Day Internship Guidelines

Post-Semester II Field Immersion Framework

Purpose & Overview

Following Semester II, the 30-day internship shifts from foundational classroom tools toward institutional-level systems: AI in Educational Research, Administrative & Financial Automation, Systematic Curriculum Engineering, and Advanced Instructional Design (LXD).

Duration: 30 Working Days (Post-Semester I Examination)

Host Organizations: Higher Education Institutions (Registrar/IQAC/Planning Offices), K–12 School Networks, EdTech Product/Curriculum Teams, Educational Research Labs, Assessment Bodies, and Education Consulting Firms.

30-Day Phased Activity Roadmap

Week 1 (Days 1–6): Administration & Institutional Workflow Optimization

- Audit administrative pain points in the host organization (e.g., student admissions, timetable scheduling, resource allocation, or fee/budget tracking).
- Design an AI-enabled operational intervention (e.g., predictive student drop-out analysis, automated administrative helpdesk, or smart inventory/resource tracking model).

Week 2 (Days 7–12): AI-Driven Curriculum Engineering & Outcome Mapping

- Analyze an existing curriculum module for alignment with Learning Outcomes (OBE/LOCF framework and NEP 2020 standards) using LLM-assisted audit tools.
- Map prerequisite knowledge graphs, bridge learning gaps, and structure a micro-credential or modular skill pathway.

Week 3 (Days 13–18): Advanced Instructional Design & Multi-Modal LXD

- Apply AI-accelerated instructional design frameworks (e.g., AI-augmented ADDIE or SAM model) to build a complete instructional unit.
- Generate multi-modal learning assets (scaffolded case studies, synthetic voice/video explanations, simulations, and tiered rubric-aligned assessments).

Week 4 (Days 19–24): Applied Educational Research & Learning Analytics

- Define an empirical research problem based on student performance data or administrative metrics.
- Leverage AI-assisted research tools for systematic literature synthesis, qualitative thematic coding of learner feedback, or statistical modeling of learning analytics

Week 5 (Days 25–30): Pilot Validation, Reporting & Knowledge Transfer

- Present administrative and instructional solutions to institutional heads (e.g., Principals, Deans, IQAC Coordinators, or Product Leads) for critique and validation.
- Package all research datasets, instructional assets, and administrative roadmaps into an institutional repository; deliver the final exit presentation.



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