DAIHC-2-04T: Ethics, Data Privacy & Legal Aspects of AI in Healthcare

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4

Detailed Contents

Module	Module Name	Module Contents	Lectures /Tutorials Hours
Module-1	Ethical Foundations in Healthcare and AI	• Introduction to ethics in healthcare and artificial intelligence • The four principles of biomedical ethics: Autonomy – respect for patients' decision-making, Beneficence – promoting patient well-being, Non-maleficence – avoiding harm, Justice – fairness and equitable access • Ethical theories and their application in clinical AI decision-making • Case examples: Ethical dilemmas in AI-assisted diagnostics and treatment recommendations • Role of AI in end-of-life care, mental health, and vulnerable populations	15
Module-II	Data Privacy and Protection Regulations	• Overview of health data and its sensitivity • Key data protection laws and frameworks: HIPAA (USA): Privacy Rule, Security Rule, and implications for AI systems; GDPR (EU): Consent, right to explanation, data minimization, profiling; National data protection laws (e.g., India's DPDP Bill, Saudi NDMO, etc.) • Cross-border data transfer challenges • Privacy-by-design and data anonymization techniques • Case studies of data breaches in healthcare AI deployments	15
Module	**Module Name**	**Module Contents**	**Lectures /Tutorials Hours**
Module-III	Ethical and Legal Challenges of AI in Healthcare	• Algorithmic bias: Causes, real-world healthcare examples, mitigation strategies • Lack of transparency: Black-box models and explainability challenges • Informed consent in AI-assisted care: Challenges and digital consent frameworks • Accountability and liability: Who is responsible for AI errors? • Ethical challenges in public health	15

		surveillance, AI triaging, and telemedicine • Legal case studies on AI misuse or failure in clinical settings	
Module-IV	Compliance, Evaluation & Responsible AI Governance	• Frameworks for ethical and legal assessment of AI systems, AI Ethics Impact Assessment, Model cards and datasheets for datasets • Auditing AI systems for fairness, transparency, and safety • AI governance models: Institutional review boards, ethics committees, algorithmic oversight • Responsible AI principles: Accountability, explainability, trustworthiness • Global guidelines: WHO, OECD, EU AI Act, UNESCO	15

		recommendations	

Books

- Floridi, L. (Ed.). (2019). The ethics of artificial intelligence. Oxford University Press.
- Price, W. N., & Cohen, I. G. (2019). Privacy in the age of medical big data. Nature Medicine, 25(1), 37–43.
- McGraw, D., Dempsey, J. X., Harris, L., & Goldman, J. (2009). Privacy as an enabler, not an impediment: Building trust into health information exchange. Health Affairs, 28(2), 416–427.
- Leslie, D. (2019). Understanding artificial intelligence ethics and safety: A guide for the responsible design and implementation of AI systems in the public sector. The Alan Turing Institute.