



AI Risk Management & Compliance: Auditing Intelligent Systems Across the Lifecycle

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Course Overview:

The course is a cutting-edge corporate training program designed to equip professionals with the knowledge and methods needed to proactively manage AI risk across every stage of the AI system lifecycle. This course presents a practical framework that transcends regulatory checklists to promote trustworthy, explainable, and resilient AI systems. Participants will learn how to assess AI resilience and robustness, perform evaluations throughout the AI audit lifecycle, apply privacy-preserving technologies, and understand the intricacies of AI accountability, liability, and governance standards. Through real-world case studies and structured methodologies, this course empowers auditors, compliance officers, and AI professionals to tackle risks related to bias, data provenance, federated learning, cloud auditing, and AI cybersecurity. Participants will leave with the confidence to lead AI risk assessments, develop ethical AI audit frameworks, and integrate AI risk governance into corporate strategy.

Target Audience:

- Chief Information Security Officers CISOs
- AI Compliance Officers
- Internal and External Auditors
- AI System Developers and Architects
- Risk Managers and Governance Professionals
- Legal and Compliance Specialists

Targeted Organisational Departments:

- Information Security and Risk Management
- Compliance and Internal Audit
- Data Science and AI Development Teams
- Legal Affairs and Corporate Governance
- Information Technology Infrastructure
- Research and Innovation

Targeted Industries:

- Financial Services
- Healthcare and Life Sciences
- Manufacturing and Robotics
- Government and Defence
- Telecommunications and Technology
- Energy and Smart Infrastructure

Course Offerings:

By the end of this course, participants will be able to:

- Conduct end-to-end intelligent systems auditing across the AI lifecycle
- Implement AI risk mitigation strategies aligned with global governance standards
- Evaluate AI resilience, robustness, and explainability
- Apply AI accountability and liability principles in assessments
- Validate AI models and assess algorithmic fairness
- Identify and manage risks related to data quality, privacy, sensors, and control systems
- Assess AI supply chain vulnerabilities and federated learning implementations
- Conduct AI privacy impact assessments and documentation audits

Training Methodology:

This highly interactive training combines theory with practical application using real-world scenarios and emerging audit methodologies from the CSA guidance. Participants will engage in group exercises, simulations of AI risk evaluation, and audit checklists aligned with the Artificial Intelligence Risk Management Framework AI RMF. Case studies include risk reviews for federated learning, AI cybersecurity auditing, human-in-the-loop designs, and fog/cloud systems. Methods like AI audit templates, explainability toolkits, and bias detection frameworks will be demonstrated. Feedback sessions and peer-reviewed group work ensure critical thinking, while structured reflection builds problem-solving capacity for complex AI auditing challenges. The course leverages AI governance standards and sample audit questions from the CSA to enable a lifecycle-based approach to AI assurance.

Course Toolbox:

- AI Risk Assessment Templates
- AI Privacy Impact Assessment Frameworks
- Explainable AI XAI Toolkits
- AI Model Validation & Fine-Tuning Guidelines
- Checklists for AI Lifecycle Auditing based on CSA Appendices
- Case Studies in Federated Learning & Sensor Risks
- Cloud/Fog AI Audit Examples
- Human-in-the-Loop Oversight Protocols
- AI Regulatory Mapping Tools GDPR, EU AI Act, etc. Demo
- AI Governance Maturity Models

Course Agenda:



Day 1: Foundations of AI Risk, Governance & Accountability

- **Topic 1:** Understanding AI Risk Management Frameworks and Global Standards
- **Topic 2:** Accountability, Responsibility, and Legal Liability in Intelligent Systems
- **Topic 3:** Auditing the Auditor: Competence, Ethics, and Independence
- **Topic 4:** Defining Trustworthy AI: Transparency, Explainability, and Predictability
- **Topic 5:** Use Cases as Risk Anchors: Contextualising Audit Scope and Metrics
- **Topic 6:** Overview of Applicable Laws, Regulations, and Compliance Requirements
- **Reflection & Review:** Beyond Compliance – Applying Governance in Real AI Scenarios

Day 2: Infrastructure, Data Governance & Sensor Risk

- **Topic 1:** Auditing Infrastructure for AI: Hardware, Connectivity, and Energy Efficiency
- **Topic 2:** Evaluating Data Processing Units CPU, GPU, TPU, Edge Computing
- **Topic 3:** Risks in Sensor Design, Calibration, and Data Capture Mechanisms
- **Topic 4:** Assessing Data Governance: Quality, Lineage, and Organic vs Synthetic Data
- **Topic 5:** Privacy Impact Assessment: Consent, Retention, and Cross-Border Compliance
- **Topic 6:** AI Supply Chain and Vendor Risk Assessment SAIBOM & Third-Party Audits
- **Reflection & Review:** Lifecycle Risk Mapping – Infrastructure to Data Flow Analysis

Day 3: Algorithms, Models & Explainable AI

- **Topic 1:** Algorithmic Risk: Auditing Supervised, Unsupervised & Reinforcement Learning
- **Topic 2:** Model Training, Fine-Tuning, and Validation Techniques LoRA, F1 Metrics
- **Topic 3:** Overfitting, Generalisation, and Performance Stability Audits
- **Topic 4:** Fairness, Bias Detection, and Ethical AI Auditing
- **Topic 5:** XAI: Explainability, Interpretability, and Trust in Model Decisions
- **Topic 6:** Auditing Advanced Learning: Federated, Few-shot, Zero-shot, and GANs
- **Reflection & Review:** Model Lifecycle Simulation – Audit Walkthrough of a Risky AI System

Day 4: Security, Interfaces, Controls & Human Oversight

- **Topic 1:** AI Cybersecurity Auditing – SIEM, IDS, Continuous Monitoring & Zero-Trust
- **Topic 2:** Interface Risk Audits: AR/VR, BCIs, Haptics, and UI Personalization Ethics
- **Topic 3:** Power Supply & Physical Security – Operational Resilience Audits
- **Topic 4:** Control Systems Auditing – Hierarchical, Behavior-Based, Hybrid Controls
- **Topic 5:** Human-in-the-Loop, On-the-Loop, and Out-of-the-Loop Governance Models
- **Topic 6:** Decommissioning and Fail-Safe Audits Kill Switch, Shutdown Protocols
- **Reflection & Review:** Intelligent Systems Threat Simulation & Defense Exercise



Day 5: Documentation, Certification & Lifecycle Governance

- **Topic 1:** Review of CSA Appendices – Audit Checklists for AI Components
- **Topic 2:** Auditing Training Records, End-User Documentation & Dev Logs
- **Topic 3:** Developing Internal AI Governance Policies & Lifecycle Controls
- **Topic 4:** Preparing for Certification: CPD, ISO, CSA, and Industry Alignment
- **Topic 5:** AI Regulatory Readiness Assessments EU AI Act, GDPR, DORA, NIST RMF
- **Topic 6:** Final Audit Report Structuring: Scoring, Evidence, and Improvement Plans
- **Reflection & Review:** Mock Audit with Peer Review and AI Risk Mitigation Planning

FAQ:

What specific qualifications or prerequisites are needed for participants before enrolling in the course?

There are no strict prerequisites; however, participants with backgrounds in risk management, auditing, compliance, AI development, cybersecurity, or legal governance will benefit most. Foundational knowledge of AI technologies and data privacy laws is recommended.

How long is each day's session, and is there a total number of hours required for the entire course?

Each day's session is generally structured to last around 4-5 hours, with breaks and interactive activities included. The total course duration spans five days, approximately 20-25 hours of instruction.

What is the difference between auditing an AI system and evaluating compliance with AI regulations?

Auditing an AI system involves assessing performance, transparency, risk mitigation, and system trustworthiness throughout its lifecycle. Compliance checks merely verify if regulations are met. This course trains auditors to evaluate beyond regulatory checklists by integrating ethical AI assessments and emerging threat analysis.

How This Course is Different from Other AI Risk Management Courses:

Unlike traditional compliance-based AI training, this course emphasises *auditing intelligent systems across their entire lifecycle* using a multidimensional, governance-based framework. Drawing directly from the CSA publication "AI Risk Management: Thinking Beyond Regulatory Boundaries," it delivers practical tools such as audit question sets, ethical oversight strategies, and resilience assessments. Participants don't just learn about AI risks; they practice identifying hidden vulnerabilities in AI infrastructure, data pipelines, and control systems through cutting-edge scenarios e.g., federated learning, fog computing, sensor abuse, and LLM audit methodologies. With a unique emphasis on human-in-the-loop governance, cloud system oversight, and privacy-enhancing technologies, the course transcends tick-box audits to empower professionals in shaping future-proof, legally defensible, and ethically sound AI environments.



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