



COMMONWEALTH
TELECOMMUNICATIONS
ORGANISATION

COURSE CATALOGUE 2027–2028

*Capacity Building for
Development Impact*

Programme Portfolio

Overview

In 2023 the Commonwealth Telecommunications Organisation (CTO) defined a new strategic course to support members' digital transformation aspirations. In keeping with this course, the CTO developed a new approach to human capacity development, the goal of which is to train members to implement information and communication technologies (ICT) solutions in their operations to support the attainment of the United Nations Sustainable Development Goals.

To achieve the new strategic goals, the CTO restructured its secretariat and streamlined its operations to support the formulation and accelerated implementation of members' digital transformation plans. Consequently, the CTO focuses on building human capacity by raising awareness and providing training on all aspects of ICT to enable its members to effectively adopt appropriate digital technologies and successfully implement their transformation plans.

The CTO is pleased to present its inaugural Capacity Building for Development Impact (CBDI) course catalogue with training programmes that are designed to equip members with the necessary knowledge, skills and competencies that would enable them to successfully implement their digital transformation strategies. The courses will be developed based on the needs of the member and customised to address the challenges that they have identified. The training methodologies employed may be blended and will incorporate self-directed, experiential learning that allow learners to apply the learnings to solve real issues in their work environments.

Upon completion of training programmes, learners will be evaluated in the form of knowledge tests and examinations to gauge their level of understanding. Measurement of impact at organisation and national level shall be applicable to technology application trainings.

Why Choose CTO CBDI Courses?

Recognising the rich diversity within the Commonwealth, the CBDI programme is designed to tailor courses to meet the unique needs of each organisation. Our courses utilise the most suitable delivery methods for each subject, offering a blend of online and in-person modes to ensure flexibility in scheduling and timetables.

Participation in the CBDI programme not only enhances the participant's skills but also broadens career prospects, increasing employability in today's competitive job market. Moreover, the CTO is committed to delivering these high-quality courses in a cost-effective manner, ensuring the best value for the investment.

Join us at CTO and take the next step in your professional journey.

SECTION 1

Digital Technologies, Connectivity and Regulation

Courses in this section build technical, policy and regulatory capability across emerging technologies, digital infrastructure, spectrum, satellite communications and cybersecurity.

EMERGING AND DATA TECHNOLOGIES

Artificial Intelligence

Delivery mode: Virtual or in-person

Course Overview

Artificial Intelligence (AI) is the capability of digital computers or computer-controlled devices and robots to perform tasks typically associated with intelligent beings. These tasks encompass reasoning, discovering meaning, generalising, and learning from past experiences.

Since the advent of digital computers in the 1940s, there has been significant progress in developing systems capable of carrying out complex tasks, such as proving mathematical theorems or playing chess. Despite these advances, AI is still far from achieving the full flexibility and breadth of human intelligence. Nevertheless, AI applications have made significant strides in specific domains, including medical diagnosis, communication tools, interpretation of surroundings, predictive modelling, search engines, voice recognition, and chatbots.

The impact of AI spans various sectors, including education, transportation, healthcare, finance, agriculture, tourism, gaming, automotive, and manufacturing. AI plays a significant role in helping businesses increase efficiency through the automation of manual routine tasks, decrease operational costs, grow revenue, and enhance customer experience. Whether used alone or combined with other technologies such as IoT, AI can contribute significantly to any digital transformation programme.

Like any other emerging technology, AI presents a host of challenges. These challenges necessitate the formulation and implementation of robust policies and regulatory frameworks to guide the responsible development and deployment of AI systems. Ensuring ethical use, transparency, accountability, and fairness are critical aspects that need to be addressed as AI continues to evolve.

This course aims to equip participants with foundational and more advanced skills in AI technologies and machine learning. During the course, you will explore and master technologies that have the potential to revolutionise the world. These include intelligent chatbots capable of understanding and communicating like humans; techniques for extracting valuable insights from Big Data, which could lead to disease prediction and life-saving applications; insights into the leadership role necessary for successful AI implementation; and considerations related to ethics and regulations in the AI landscape. By the end of this course, you will be well-prepared to navigate the exciting and transformative field of AI.

Learning Outcomes

- ✓ Understanding and applying the concepts of AI in any environment
- ✓ Gaining knowledge on the requirements for setting up AI
- ✓ Understanding of how to keep people secure with AI
- ✓ Gain knowledge on the legislative and policy controls for AI
- ✓ Understanding the practical steps for effective adoption of AI

Course Structure/Modules

Module 1: Overview and Definition of AI

This module will give an overview and concept of the AI technology, its potential, objectives, and goals. It will also explore the pitfalls and the risks involved with adoption of the technology.

- Introducing the concepts
- Pros and Cons of AI

- Future of AI and Machine Learning
- Risks and challenges involved with AI

Module 2: Adoption of AI

This module explores the applications and tools needed for the adoption of AI.

- Infrastructure design
- Hardware/software
- Networks
- Access

Module 3: Controls and Security for Adoption of AI – Keeping People Secure with AI

- Policy and Regulation
- Ethical considerations
- Security solutions

Module 4: Implementing AI

- Application of AI in Knowledge Management Era
- Frameworks for Implementation of AI
- Leadership Attributes for Implementation of AI
- Challenges in Implementing AI

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Internet of Things (IoT)

Delivery mode: Virtual or in-person

Course Overview

The Internet of Things (IoT) is a vast network that connects billions of physical devices, from ordinary appliances to sensors and actuators, to the internet. These devices have the capability to collect and share information with each other, operating autonomously without the need for human intervention. Moreover, these devices can connect, process, and store information.

Applications of IoT have the potential to transform all aspects of our daily lives. They provide numerous benefits, such as enabling control of home appliances, monitoring health via wearable devices, and offering navigation and control for autonomous vehicles. Additionally, IoT provides numerous opportunities to enhance government services by supplying real-time information for decision-making.

This course offers training on the essential aspects of IoT, encompassing both the technical and commercial factors relevant to its deployment. It provides a proven approach that assists participants in identifying specific use cases where the deployment of IoT can directly benefit their organisation or country. These use cases may cover a variety of domains, including smart metering, agriculture, healthcare, education, and transportation. By the conclusion of this course, participants will be well-prepared to harness the transformative potential of IoT in their respective fields.

Learning Outcomes

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

- ✓ Understanding elements of IoT ecosystem, its benefits and opportunities
- ✓ Knowledge and understanding of the software requirements for deploying IoT
- ✓ Understanding the distinction between IoT and traditional telecoms services
- ✓ Knowledge and understanding of the requirements and options for connecting IoT devices
- ✓ Understanding the security measures/ controls and regulatory implications for the deployment of IoT
- ✓ Knowledge and understanding of selecting vendors and evaluation
- ✓ Practical steps to deploying IoT for development impact

Course Structure/Modules

Module 1: Overview and Definition of IoT

- Introduction to IoT
- Elements of IoT Ecosystem
- Technology & Business Drivers
- IoT applications, trends & implications
- Identifying opportunities
- Use case scenarios

Module 2: Adoption of IoT

- Understanding infrastructure design for deploying IoT
- Application architecture
- Hardware and software capabilities

- Network and access requirements
- Exploring options for connecting IoT devices i.e., cellular, short range etc.

Module 3: Controls and Security for Adoption of IoT

- Securing deployments
- Regulatory and ethical considerations

Module 4: Implementing IoT

- Frameworks for implementing IoT
- Project Selection & Prioritisation

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Blockchain Technology

Delivery mode: Virtual or in-person

Course Overview

Blockchain serves as an unchangeable ledger that streamlines the recording of transactions and asset tracking within a business network. The restricted-access ledger, accessible only to authorised members, manages both tangible and intangible assets. This system significantly bolsters security and fosters trust within businesses. Moreover, it possesses the ability to harmonise and interlink supply chains by bridging business operations and financial aspects across the ecosystem, including government bodies and academic institutions. By enhancing security, ensuring transparency, enabling instant traceability, and streamlining processes, it cultivates trust among trading partners and expedites issue resolution.

Among the benefits provided by blockchain technology are cost reduction from overheads and transaction costs, and the elimination of the need for a third party for transaction verification. In addition, blockchain ensures increased speed, efficiency, and automation.

Numerous sectors and business industries are benefiting from blockchain technology, such as healthcare, insurance, governments, trade, and food supply. By leveraging blockchain, these sectors can enhance their operations and provide better services.

Learning Outcomes

- ✓ Defining blockchain technology, foundations and concepts
- ✓ Explain the benefits and need for blockchain
- ✓ An understanding of the blockchain structures and basic operations
- ✓ An understanding of blockchain solutions and their relevance to the business
- ✓ Defining business case for blockchain solutions
- ✓ Identifying the right solutions for the business and the challenges of adoption
- ✓ Recognising the opportunities for blockchain technology and avoiding pitfalls

Course Structure/Modules

Module 1: Overview and Definition of Blockchain Technology

- Definition of blockchain technology
- Fundamentals and concepts of blockchain technology
- Blockchain structure and basic operations
- Benefits and need for blockchain technology
- Recognising opportunities and avoiding pitfalls
- Difference between public and private blockchain
- Use case scenarios

Module 2: Adoption of Blockchain Technology

- Infrastructure design
- Hardware/software capabilities
- Network and access requirements

Module 3: Controls and Security for Adoption of Blockchain Technology

- Establishing trust in data

- Elements of trust in blockchain
- Platforms for validating the authenticity of data
- Regulatory considerations

Module 4: Implementation of Blockchain Technology

- Frameworks for implementing Blockchain technology

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software, and data scientists

Big Data Analytics

Delivery mode: Virtual or in-person

Course Overview

Big data analytics involves dealing with data sets that are extremely large and diverse, encompassing structured, unstructured, and semi-structured data from various sources and of different sizes. Traditional databases cannot accommodate the capacity of such large and diverse data sets. Emerging technologies, such as Artificial Intelligence, have significantly contributed to the complexity associated with generating data from multiple diverse sources. These sources include mobile devices, social media, the Internet of Things (IoT), sensors, devices, video/audio, networks, and log files.

Despite the complexities of generating data from diverse sources, businesses are now recognising the importance of collecting real-time information. The benefits of this approach include cost reduction in data storage, faster and better decision-making, as well as the development and marketing of new products and services.

This programme aims to provide participants with an in-depth understanding of data analytics for business intelligence, statistical analysis, exploratory data analysis, as well as data analytics techniques and tools. The programme includes practical, hands-on exercises on data cleaning.

If you're looking to enhance your skills in data analytics or considering a career change to become a data analyst, then this course is for you.

Learning Outcomes

- ✓ Define and evaluate fundamental concepts and principles in big data analytics
- ✓ Discuss the key concepts, benefits and challenges of big data analytics
- ✓ Understanding ethical and regulatory requirements on data collection and storage
- ✓ Understanding data technologies
- ✓ Discuss data analytics for business intelligence and growth

Course Structure/Modules

Module 1: Overview and Definition of Big Data Analytics

- Introduction to Data analytics
- Benefits of big data analytics in business
- Significance of big data roles in the workplace
- Use case scenarios

Module 2: Adoption of Big Data Analytics

- Data analytics tools and software
- Application architecture
- Hardware and software capabilities
- Network and access requirements

Module 3: Controls and Security for Adoption of Big Data Analytics

- Privacy and security issues in data analytics
- Regulatory and ethical considerations

Module 4: Implementing Big Data Analytics

- Frameworks for implementing Big Data analytics
- Understanding implementation costs

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Big Data Analytics and Data Driven Decision Making

Delivery mode: Virtual or in-person

Course Overview

Organisations generate large volumes of data through business systems, mobile applications, social media, connected devices, sensors and digital platforms. However, the value of this data is realised only when it is transformed into reliable insights that support action.

This practical course equips participants with the knowledge and skills to understand, manage and analyse large and complex datasets. It explores big data concepts, data architecture, analytics technologies, artificial intelligence and machine learning, data governance, privacy, security and ethical data use. Participants will also learn how to identify valuable analytics opportunities, select appropriate tools and develop an implementation roadmap aligned with organisational priorities.

Designed for instructor-led delivery over three days, the course combines theoretical instruction, sector-based case studies, practical exercises and hands-on laboratory sessions using open-source tools.

Learning Outcomes

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

- ✓ Explain the fundamental concepts, characteristics and strategic value of big data analytics
- ✓ Distinguish between structured, semi-structured and unstructured data and assess how each can support organisational decision-making
- ✓ Evaluate data architectures, platforms and analytical tools based on organisational needs, resources and regulatory requirements
- ✓ Apply data analytics techniques to generate insights for business intelligence, forecasting and evidence-based decision-making
- ✓ Assess data quality and prepare datasets for reliable analysis
- ✓ Apply appropriate data governance, privacy, security and ethical principles throughout the data lifecycle
- ✓ Identify high-value opportunities for using analytics, artificial intelligence and machine learning across different sectors
- ✓ Evaluate the costs, benefits, risks and potential return on investment of analytics initiatives
- ✓ Develop a practical roadmap for implementing and scaling data analytics capabilities within an organisation

Course Structure/Modules

Module 1: Big Data Fundamentals and Use Cases

- Introduction to big data, data analytics and business intelligence
- Descriptive, diagnostic, predictive and prescriptive analytics
- Structured, semi-structured and unstructured data
- The five characteristics of big data: volume, velocity, variety, veracity and value
- Data as a strategic organisational asset
- The data value chain
- Benefits and challenges of big data analytics

- Roles and responsibilities within a data analytics team
- Big data applications in government, healthcare, finance, agriculture, telecommunications and smart cities
- Practical exercise on identifying and exploring different data types

Module 2: Data Architecture and Analytics Technologies

- Understanding data ecosystems and the data lifecycle
- Data ingestion, storage, processing, analysis and consumption
- Data warehouses, data lakes and lakehouse architectures
- Medallion architecture: bronze, silver and gold data layers
- Data formats, including CSV, JSON, Parquet and Avro
- Batch processing and real-time data streaming
- Data integration approaches: ETL, ELT, APIs and change data capture
- Analytics tools, query engines and visualisation platforms
- Introduction to artificial intelligence and machine learning in analytics
- Machine learning workflows, algorithms and MLOps
- Cloud, on-premises, hybrid and edge deployment models
- Data interoperability and master data management
- Practical exercise on building a data lifecycle pipeline

Module 3: Data Governance, Security and Ethics

- Principles of data privacy and protection
- Privacy by design and Data Protection Impact Assessments
- Data minimisation, retention and purpose limitation
- Anonymisation, pseudonymisation and aggregation
- Security risks in big data environments
- Identity and access management
- Encryption, network security, audit logging and vulnerability management
- International, regional and sector-specific regulatory frameworks
- Data ethics, fairness and responsible artificial intelligence
- Identifying and mitigating bias in data and algorithms
- Transparency, explainability and human oversight
- Data governance models, roles and responsibilities
- Data catalogues, business glossaries, data lineage and quality standards
- Practical exercise on data governance and security controls

Module 4: Implementing Big Data Analytics

- Treating analytics implementation as an organisational change programme
- CRISP-DM and agile analytics implementation frameworks
- Defining business problems, success measures and project requirements
- Moving from insights to decisions, actions and measurable outcomes
- Embedding analytics into operational workflows
- Addressing organisational resistance and building trust in analytics
- Data cleaning, preparation, validation and documentation
- Planning infrastructure, staffing, training and operational costs

- Build, buy and open-source technology options
- Total cost of ownership and phased investment
- Measuring benefits, organisational impact and return on investment
- Scaling analytics from pilot projects to enterprise-wide capabilities
- Establishing an analytics Centre of Excellence
- Developing a 12-month analytics implementation roadmap
- Capstone exercise on designing an organisational analytics roadmap

Target Audience

This course is suitable for:

- ✓ ICT and telecommunications professionals
- ✓ Data analysts and aspiring data professionals
- ✓ Data engineers and data scientists
- ✓ IT managers and systems architects
- ✓ Government officials and policymakers
- ✓ Regulators and public-sector professionals
- ✓ Business analysts and strategy professionals
- ✓ Digital transformation and innovation teams
- ✓ Risk, compliance and data-governance professionals
- ✓ Managers responsible for organisational planning and decision-making
- ✓ Professionals involved in business intelligence, performance management or service improvement

Cloud Computing

Delivery mode: Virtual or in-person

Course Overview

Cloud computing is one of the emergent technologies that has disrupted the information communication Technology industry. In comparison to the traditional onsite IT, cloud computing has been seen to provide many benefits such as cost cutting, less maintenance and increased capacity of data, which is why it is widely adopted across the world.

Cloud computing, referred to as internet-based computing, makes provision for the storing and on-demand accessing of data and programmes via the internet to computing resources and servers hosted at a remote data centre instead of computer's hard drive or local servers. The servers are managed by cloud services provider and are available to clients at a monthly subscription fee. This has given clients the flexibility of 'Pay as you go'. The data that can be hosted by the cloud services provider includes files, images, documents and any manner of storable documents. Office 365 is a typical example of cloud computing where clients are allowed to store, access, edit their MS Office documents online without necessarily installing the programme on their devices.

This programme is designed to equip the participants with knowledge and skills on cloud computing and how they can identify the opportunities for cloud computing in their organisations as well as the benefits. The course provides in-depth understanding of the essential characteristics, the structures and architecture of cloud computing. In addition, the programme will highlight the components, models and categories of cloud computing. Lastly the participants will have an appreciation of the emerging trends and practices such as edge and green cloud computing, and how these practices are likely to impact their organisations.

If you are an IT professional seeking to upgrade your skills and enhance your employability, then this course is for you!

Learning Outcomes

- ✓ A comprehensive understanding of cloud computing, overview, and benefits of cloud computing
- ✓ Understanding the core concepts, principles, and essential characteristics of cloud computing
- ✓ Define the various models and services in cloud computing
- ✓ Identify the different types of cloud services and their use cases
- ✓ Understand the architecture of cloud computing systems, including virtualisation, software-defined networks, and storage
- ✓ Understanding of the programming models for cloud computing systems
- ✓ Analyse the security and privacy issues in cloud computing systems
- ✓ Recognising legal, social, ethical, and professional issues in cloud computing

Course Structure/Modules

Module 1: Overview and Definition of Cloud Computing

- Definition of cloud computing
- Benefits of cloud computing
- Essential characteristics of cloud computing
- Recognising opportunities and avoiding pitfalls

- Defining business case for cloud computing
- Use case scenarios

Module 2: Adoption of Cloud Computing

- Application architecture
- Hardware and software capabilities
- Network and access requirements

Module 3: Controls and Security for Adoption of Cloud Computing

- Legal, social, ethical and professional issues in cloud computing
- Regulatory considerations

Module 4: Implementing Cloud Computing

- Frameworks for implementing cloud computing
- Understanding implementation costs

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Fifth Generation Mobile Networks (5G)

Delivery mode: Virtual or in-person

Course Overview

5G is the new generation of wireless technology, designed to increase the speed and responsiveness of wireless networks thus supporting significantly faster mobile broadband speeds and heavier data usage than 4G and other generations. The technology is expected to enable the full potential of internet of things. 5G is already being used and trialed across sectors and industries.

In contrast to 4G, which uses large cell towers and high-powered transmitters and antennae to transmit signals over longer distances, 5G employs multiple small cell stations for signal transmission. The significance of small cell stations is largely attributed to the fact that 5G relies heavily on the millimetre wave spectrum to generate high internet speed at 20 gigabits per second over short distances. The speed is believed to exceed wireline network speeds and offer latency of below 5 milliseconds.

5G has been successfully implemented in the agricultural, health, and transport sectors, offering numerous benefits for the enablement of smart offices, smart cities, and smart homes.

This non-technical programme aims to equip participants with a comprehensive understanding of 5G concepts. The focus will be on 5G network architecture, spectrum, 5G applications, deployments, and use cases. Additionally, the course will delve into the exploration of new 5G technologies and the Internet of Things.

Learning Outcomes

- ✓ Define the fundamentals of 5G, the key technologies and their impact on future wireless communication systems
- ✓ Explain the benefits of 5G in comparison to 4G and other generations
- ✓ Understanding of the 5G networks architecture
- ✓ Understanding of the security and controls for the deployment of 5G
- ✓ Understanding of the 5G deployment strategies and frameworks

Course Structure/Modules

Module 1: Overview and Definition of 5G

- Definition of 5G technology
- Benefits of 5G
- 5G limitations and challenges
- Use case scenarios

Module 2: Adoption of 5G Technology

- Architecture of 5G networks
- Hardware and software capabilities
- Access requirements

Module 3: Controls and Security for Adoption of 5G

- Legal and Regulatory considerations

Module 4: Implementing 5G

- Frameworks for implementing 5G
- Understanding implementation costs

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Spectrum Management

Delivery mode: Virtual or in-person

Course Overview

Electromagnetic waves form the foundation of wireless communications. The part of the electromagnetic spectrum, known as the radiocommunications spectrum, which includes frequencies ranging from 1 Hz to 3000 GHz, is universally used to carry information wirelessly for numerous vital wireless terrestrial and space services. These services range from television and radio broadcasts to mobile phones, Wi-Fi, and satellite communications. Spectrum management is the process by which radio communications frequencies are regulated to promote efficient use and foster social benefit.

The Internet of Things, the hyper-connectivity of devices and people on land, sea, and in space, and consumers' insatiable demand for bandwidth-intensive innovative services are fuelling the demand for spectrum. As the spectrum is a limited but reusable resource, governments around the world must ensure that radio spectrum is used efficiently.

On the other hand, existing regulatory policies on spectrum management lack coherence as they do not encourage flexible frequency utilisation and opportunistic spectrum access in cellular systems.

This course aims to equip participants with the knowledge and skills necessary to address the challenges related to spectrum management. The course delves into various aspects of spectrum allocation, including economic, regulatory, technical, and policy perspectives. Additionally, it explores the key drivers shaping future spectrum usage and emphasises the factors that regulatory bodies must consider. Participants will also gain insights into spectrum allocation tools, licensing, and business models supporting wireless broadband. By integrating theory with practical applications, the course provides strategies and frameworks for achieving a net social benefit.

Learning Outcomes

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

- ✓ Understanding of spectrum policy and management
- ✓ Understanding of the issues and challenges in spectrum management
- ✓ Understanding of economic policy, regulatory and competition perspectives of spectrum management
- ✓ Utilising the tools to improve broadband coverage using spectrum assignment

Course Structure/Modules

Module 1: Overview and Definition of Spectrum Management

- Introduction to Spectrum management
- Spectrum management best practices
- 5G limitations and challenges
- Use case scenarios

Module 2: Planning for Spectrum

- Spectrum requirements

Module 3: Controls and Security for Adoption of 5G

- Economic policy, regulatory and competition perspectives of spectrum management

Module 4: Implementing Spectrum

- Frameworks for implementing 5G
- Spectrum allocation tools, licensing, and business models
- Understanding implementation costs

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ IT Specialists in computer hardware, software and data scientists

Satellite Communications & Space Technologies for Emerging Markets

Delivery mode: Virtual or in-person

Course Overview

This course provides a comprehensive introduction to satellite communications, space technologies, and their practical applications, with a particular focus on developing and geographically diverse regions. It examines how satellite solutions can bridge connectivity gaps, support economic development, enhance disaster resilience, and enable digital transformation, especially in countries with remote populations, island geographies, and limited terrestrial infrastructure.

Participants will develop both technical knowledge and policy/regulatory understanding, equipping them to make informed decisions on satellite deployment, strategic partnerships, and national development planning.

Combining theoretical foundations with real-world case studies from developing regions, the course emphasises practical strategy discussions tailored to the needs of CTO member states.

Learning Outcomes

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

- ✓ Understand the fundamental principles of satellite communications and orbital systems
- ✓ Evaluate different satellite technologies and connectivity solutions for diverse environments
- ✓ Assess the role of satellites in enabling connectivity, economic development, and digital inclusion
- ✓ Analyse use cases of satellite applications across sectors such as disaster management, agriculture, maritime, aviation, and education
- ✓ Examine policy, regulatory, and spectrum management considerations for satellite deployment
- ✓ Identify suitable partnership models, including public-private partnerships, for satellite initiatives
- ✓ Evaluate emerging trends such as low Earth orbit (LEO) constellations, satellite IoT, and space sustainability

Course Structure/Modules

Module 1: Introduction to Satellite Communications

- History and evolution of satellite systems
- Types of satellites (GEO, MEO, LEO)
- Basic components: space segment, ground segment, user terminals

Module 2: Satellite Technologies & Infrastructure

- Frequency bands (L, C, Ku, Ka)
- Payloads and transponders
- Ground stations and VSAT systems
- Integration with terrestrial networks

Module 3: Connectivity & Digital Inclusion

- Rural and remote broadband solutions

- Universal service strategies
- Case studies from Africa, Pacific Islands, and Caribbean nations

Module 4: Applications & Use Cases

- Disaster risk reduction and emergency communications
- Agriculture (precision farming, weather monitoring)
- Maritime and aviation connectivity
- Telemedicine and remote education

Module 5: Policy, Regulation & Spectrum

- Licensing frameworks
- Spectrum allocation and coordination
- Role of international bodies (e.g., ITU)
- National space policies

Module 6: Business Models & Investment

- Satellite operators and service providers
- PPP models and financing mechanisms
- Cost-benefit analysis for governments
- Market trends and competition

Module 7: Emerging Trends & Innovations

- LEO mega-constellations (e.g., Starlink, OneWeb)
- Satellite IoT and 5G integration
- Earth observation and data analytics
- Space sustainability and debris management

Module 8: Strategy & Implementation Workshop

- Designing a national satellite strategy
- Group exercises and scenario planning
- Regional collaboration opportunities

Target Audience

- ✓ Government officials (ICT, telecommunications, space, and infrastructure ministries)
- ✓ Regulators and policymakers
- ✓ Telecom operators and network planners
- ✓ Universal service fund managers
- ✓ Disaster management agencies
- ✓ Development partners and regional organisations

Satellite Communications, Regulation and Licensing: An Executive Masterclass for Commonwealth Regulators

Delivery mode: Virtual or in-person

Course Overview

The Advanced Telecommunications Regulatory Frameworks and Policy course provides participants with a comprehensive understanding of the regulatory, technical, and policy frameworks that underpin modern telecommunications ecosystems. Drawing on the United States' regulatory experience, participants will explore best practices in spectrum management, undersea cable governance, satellite licensing, and universal service policies.

The programme combines technical concepts with regulatory and policy perspectives, enabling participants to understand how governments, regulators, industry stakeholders, and international organisations collaborate to develop secure, resilient, and inclusive communications infrastructure. Participants will also examine international coordination mechanisms, licensing processes, trusted vendor considerations, market access, and emerging regulatory challenges affecting the telecommunications sector.

Learning Outcomes

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

- ✓ Explain the principles, governance structures, and regulatory frameworks governing modern telecommunications
- ✓ Understand spectrum management processes and the roles of national and international regulatory institutions
- ✓ Analyse policy and regulatory considerations for undersea cable deployment, licensing, and security
- ✓ Evaluate satellite communications systems and licensing frameworks for GSO and NGSO networks
- ✓ Interpret universal service policies and mechanisms for expanding digital connectivity
- ✓ Apply international best practices in telecommunications regulation to national policy development
- ✓ Assess regulatory approaches for secure, resilient, and future-ready communications infrastructure
- ✓ Strengthen regulatory decision-making through international coordination and stakeholder engagement

Course Structure/Modules

Module 1: Foundations of Telecommunications Regulation

- Telecommunications regulatory ecosystem
- Role of telecommunications regulators
- Regulatory governance models
- National and international regulatory institutions
- Policy development and stakeholder engagement
- Regulatory best practices

Module 2: Spectrum Management and Regulatory Coordination

- Principles of spectrum management
- Commercial versus government spectrum
- FCC and NTIA roles and responsibilities
- Domestic spectrum coordination
- Spectrum planning and allocation
- National spectrum governance
- International spectrum coordination
- Regional organisations (CITEL)
- ITU Radiocommunication Sector (ITU-R)
- World Radiocommunication Conference (WRC)
- Spectrum policy development

Module 3: Undersea Cable Policy, Regulation and Licensing

- Introduction to submarine cable systems
- Undersea cable architecture
- Global connectivity and economic development
- Cable landing stations
- Submarine Line Terminal Equipment (SLTE)
- Licensing frameworks
- Regulatory approval processes
- Security considerations
- Trusted vendor policies
- International coordination
- Market access
- Regulatory fees

Module 4: Satellite Communications and Licensing Frameworks

- Satellite communications fundamentals
- Space stations and earth stations
- Satellite anatomy
- Satellite orbits (GSO and NGSO)
- Satellite services
- Satellite spectrum
- FCC Space Bureau overview
- Commercial, experimental and amateur licensing
- GSO licensing
- NGSO licensing
- Earth station licensing
- Orbital debris mitigation
- International coordination
- Market access
- Licensing milestones and compliance

Module 5: Universal Service Policy and Digital Inclusion

- Universal Service principles
- History of Universal Service
- Telecommunications Act and Communications Act
- Universal Service governance
- Universal Service programmes
- Connect America Fund
- Lifeline Programme
- E-Rate
- Rural Health Care Programme
- Universal Service funding mechanisms
- Universal Service Administrative Company (USAC)
- Current regulatory developments
- Expanding broadband access
- Digital inclusion strategies

Module 6: Emerging Regulatory Challenges and International Best Practices

- Trusted networks
- Secure communications infrastructure
- Regulatory transparency
- Industry consultation
- International cooperation
- Future telecommunications policy
- Emerging technologies
- Regulatory innovation
- Building resilient communications ecosystems
- Lessons for developing countries

Target Audience

- ✓ Telecommunications Regulatory Authorities
- ✓ Ministries responsible for ICT and Digital Economy
- ✓ National Spectrum Management Authorities
- ✓ Universal Service Fund Managers
- ✓ Telecommunications Policy Makers
- ✓ Licensing and Compliance Officers
- ✓ Satellite Communications Regulators
- ✓ Telecommunications Operators
- ✓ Internet Service Providers (ISPs)
- ✓ Undersea Cable Operators
- ✓ Telecommunications Engineers transitioning into regulatory roles
- ✓ ICT Legal and Regulatory Advisors
- ✓ Government Digital Transformation Leaders
- ✓ International Development Organisations
- ✓ Regional Telecommunications Organisations
- ✓ Senior Managers responsible for telecommunications regulation and policy

CyberShield Telecom: Securing Networks, Services and Customer Trust

Delivery mode: Virtual or in-person

Course Overview

This course is designed to equip telecommunications operators with the knowledge and practical skills required to protect critical telecom infrastructure, networks, systems, services, and customer data from evolving cyber threats.

The course focuses on cybersecurity risks specific to the telecom sector, including network attacks, data breaches, service disruption, fraud, supply chain vulnerabilities, cloud and 5G security risks, insider threats, and regulatory compliance requirements.

Participants will gain a practical understanding of how to identify cyber risks, strengthen security controls, respond to incidents, and build a resilient cybersecurity culture within telecommunications operations.

Learning Outcomes

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

- ✓ Understand the cybersecurity threat landscape affecting telecommunications operators
- ✓ Identify key vulnerabilities across telecom networks, systems, applications, and infrastructure
- ✓ Explain cybersecurity risks associated with mobile networks, fixed networks, cloud services, IoT, and 5G
- ✓ Apply appropriate cybersecurity controls to protect telecom infrastructure and customer data
- ✓ Strengthen incident detection, response, recovery, and business continuity practices
- ✓ Understand the role of governance, risk management, compliance, and cybersecurity policies
- ✓ Recognise cyber fraud, social engineering, insider threats, and supply chain risks
- ✓ Promote a cybersecurity-aware culture across technical and non-technical teams

Course Structure/Modules

Module 1: Introduction to Cybersecurity in Telecommunications

- Understanding cybersecurity in the telecom environment
- Why telecom operators are high-value targets
- Key cyber threats facing telecom operators
- Impact of cyber incidents on service availability, revenue, reputation, and national security

Module 2: Telecom Network Security Fundamentals

- Security risks in fixed, mobile, core, access, and transmission networks
- Network segmentation and access control
- Secure configuration and patch management
- Protection of critical telecom infrastructure

Module 3: Cyber Threats and Attack Techniques

- Malware, ransomware, phishing, and social engineering
- Distributed Denial of Service attacks
- SIM swap fraud and telecom-related fraud

- Insider threats and privilege misuse
- Advanced persistent threats targeting telecom operators

Module 4: Securing Mobile, Cloud, IoT and 5G Environments

- Cybersecurity risks in mobile networks
- Cloud security for telecom services
- IoT security risks and controls
- 5G security considerations
- Vendor and supply chain security risks

Module 5: Data Protection and Customer Information Security

- Protecting customer data and personally identifiable information
- Data privacy principles
- Secure handling, storage, and transmission of data
- Breach prevention and notification considerations
- Regulatory and compliance obligations

Module 6: Cybersecurity Governance, Risk and Compliance

- Cybersecurity governance structures
- Risk assessment and risk treatment
- Cybersecurity policies, standards, and procedures
- Roles and responsibilities across the organisation
- Compliance with national, regional, and international cybersecurity requirements

Module 7: Cyber Incident Management and Response

- Incident detection and reporting
- Incident response lifecycle
- Roles of security operations centres
- Crisis communication during cyber incidents
- Recovery, lessons learned, and post-incident improvement

Module 8: Building Cyber Resilience in Telecom Operations

- Business continuity and disaster recovery
- Security awareness and staff training
- Cybersecurity culture within telecom operators
- Continuous monitoring and improvement
- Developing a practical cybersecurity action plan

Target Audience

- ✓ Telecommunications network engineers and technical officers
- ✓ Cybersecurity and information security professionals
- ✓ ICT and IT operations teams
- ✓ Risk, compliance, and audit officers
- ✓ Data protection and privacy officers
- ✓ Service operations and customer support managers
- ✓ Business continuity and disaster recovery teams
- ✓ Regulatory affairs and policy officers within telecom operators
- ✓ Senior managers responsible for telecom operations, security, or digital transformation
- ✓ Non-technical staff who require awareness of telecom cybersecurity risks

Governing Cybersecurity

Delivery mode: Virtual or in-person

Course Overview

The Information and Communication Technology (ICT) industry has experienced exponential growth in the last few decades, giving rise to a hyperconnected world in which everyday activities are increasingly conducted over global ICT networks. While tremendous business benefits are evident, the rise in cyberattacks and cybercrime presents a challenge that businesses and governments must address. According to a report by IBM, cybercrime will cost the global economy \$10.5 trillion per year by 2025.

Cybersecurity frameworks establish the necessary measures and practices to protect systems, networks, and programs from digital attacks. Cyberattacks may range from simply interrupting normal business processes to targeting, accessing, changing, or destroying sensitive information, as well as extorting ransoms from users.

The challenges that organisations face today are largely attributed to the fact that the implementation of effective cybersecurity measures is complex, considering the integration of many devices and the lack of skilled cybersecurity specialists and practitioners. Secondly, attackers are becoming more knowledgeable and innovative, gaining an advantage over the practices adopted by many organisations. Lastly, the costs of recovering from network and data breaches can be significant. The average cost of a data breach in 2023 was \$4.45 million.

Governments and businesses are under pressure to secure their digital assets and critical infrastructure, such as power plants, hospitals, airports, and financial institutions, to ensure protection from cyberattacks.

This course is designed for officials from state administration and governmental agencies involved in establishing, developing, coordinating, and implementing a national cybersecurity strategy and other relevant projects. It is also of interest to anyone influencing cybersecurity initiatives at the national level. This training course aims to deliver insights regarding the best cybersecurity governance practices at the national level, including methods, practical examples, and lessons learned.

Learning Outcomes

Upon completion of this training programme, learners will be able to do the following.

- ✓ Initiate, lead and contribute to national cybersecurity strategy development and implementation
- ✓ Structure mandates of stakeholders in national cybersecurity
- ✓ Formulate a framework that provides a strategic view of an organisations cybersecurity risk management including management mechanisms
- ✓ Manage cybersecurity incidents handling process in multi-stakeholder environments
- ✓ Identify, justify and lead improvement initiatives within the national cybersecurity framework
- ✓ Argue different alternative methods to be applied in national cybersecurity management
- ✓ Demonstrate an understanding of the importance of national cybersecurity strategy in the entire state security context
- ✓ Demonstrate knowledge on essential elements ensuring an effectiveness of national cybersecurity strategy
- ✓ Put in place critical steps for improving a culture of cyber awareness in an organisation
- ✓ Demonstrate an awareness of the leading approaches to managing cybersecurity
- ✓ Practical interpretation of the trade-offs between security and privacy and a method for understanding organisation priorities

Course Structure/Modules

Module 1: Introduction to Cybersecurity Strategy Essentials

- Overview on international cybersecurity regulations and initiatives
- Essential drivers and elements for national cybersecurity strategy
- Typical cyber security strategy development path –building blocks, lifecycle and supervision

Module 2: Cybersecurity Strategy Models

- Increasing context within national cybersecurity strategy using maturity models
- Analysis of maturity evaluation – Case study
- Cyber strategy development and maturity evaluation

Module 3: Cultivating a Culture of Cybersecurity

- Building a culture of cybersecurity
- Exploring ethics in cybersecurity
- Roundtable on best practices and lessons learned

Module 4: Cybersecurity at Institutional and National Level

- National cybersecurity from different views; state secret service, military, government and its organisations, international and local businesses and citizens
- Essential elements for national incident handling capabilities
- Centralised and decentralised models – case study
- Establishment of national cyber incident handling capabilities – lessons learnt
- Best practices on quantification of incident detection at national level
- Best practices overview, service models and implementation guidelines
- Readiness to handle cyber incidents at national level during national elections
- Handling cyber crisis at national level

- Establishing requirements and communication channels between government and national cybersecurity incident response team
- Geopolitical issues, international crime, internet as a platform for radicalisation and terrorism

Module 5: Cybersecurity Strategies at International Level

- International Initiatives; ITU, GFCE, FIRST.org, ESCOTF-CSIRT, AP-CERT and related
- Example of international border-less cyber investigation/analysis of official INTERPOL report
- Best practices on making national cybersecurity-related legislation; general vs. sectorial approach; international vs. local standards
- Success story from any organisation (Including GDPR aspects) – Case study
- Roundtable – “Is strong local cybersecurity industry (community) one of the best enablers to advance in cybersecurity at national level?”

Module 6: Budgeting for Cybersecurity Initiatives

- Budgeting for national cybersecurity initiatives: investments vs return. What really works? Budget scenarios for prevention, detection and response and learn how each affects profitability

Target Audience

- ✓ Employees with two or more years working experience in the ICT industry
- ✓ ICT Specialists in computer hardware, software and data scientists

ICT Regulatory Masterclass for Executives and Board Members

Delivery mode: Virtual or in-person

Course Overview

Technological innovation is taking place at an unprecedented pace. Information and communication technologies (ICT) are constantly evolving, connecting devices and people revolutionising all sectors of the economy, driving growth, changing businesses and lives. The traditional frameworks by which regulators governed the sector are proving inadequate in the light of the phenomenal changes in the sector.

To safeguard and protect consumers, ICT regulation must evolve to fulfil their role in the changing ICT landscape.

An appropriate regulatory framework and relevant skills and knowledge lie at the heart of ICT regulation but the dynamism of the sector and unrelenting technological innovation present challenges for regulators to maintain the level of technological understanding that the environment demands.

This course was designed to explain to executives and board members in the regulation space, the role of the regulator and provide an understanding of the policy and legislation that govern ICT, insight into emerging technologies such as 6G/Wi-Fi 6, their impact on the economies and how regulators can proactively fulfil their role. Furthermore, the course will help equip participants with the necessary skills to effectively participate in the deliberations at the board of the regulatory authority.

Learning Outcomes

Upon completion of the course, the participants must be able to do the following.

- ✓ Understanding of the role of the regulator in the ICT landscape
- ✓ Understanding of ICT ecosystem, policy, and regulation
- ✓ Understanding of the emerging technologies and their impact on regulation
- ✓ Ability to create an enabling environment
- ✓ Effectively demonstrate leadership ethics and governance at board level
- ✓ Understanding of cyber security issues and the policy and legal requirements
- ✓ Ability to build inclusive societies
- ✓ Understanding of the strategies for affordable access to broadband and ICT devices
- ✓ Ability to collaborate in a hyper connected world
- ✓ Understanding of the radio frequency spectrum

Course Structure/Modules

Module 1: The Role of the Regulator

- National circumstances and goals
- Consumer protection
- Market Entry
- Managing common resources
- Maintaining a level playing field for fair competition
- Costing

- Fostering Investment
- Enforcement

Module 2: 4th Industrial Revolution Technology, the ICT Ecosystem and the Impact on Regulation

- ICT – an Enabler for development
- National and global infrastructure and networks
- Players and services in the ICT sector

Module 3: Policy, Legislation and Regulation – Creating an Enabling Environment

- Creating an enabling environment for ICT products and services
- Technology neutrality
- Competition
- Privacy and security

Module 4: Collaboration in a Hyper-Connected World

- The hyper connected world
- Multi-disciplinary approaches to regulation
- Key trends in the hyper connected world
- Case study: thriving in the hyperconnected world

Module 5: Radio Frequency Spectrum Management

- Introduction to radio frequency spectrum
- Wireless Services
- Mobility and accessibility
- Case study: The uptake of the digital terrestrial television broadcasting

Module 6: Meaningful, Affordable Universal Broadband Connectivity

- Building inclusive societies
- Affordable access to broadband ICT and devices
- Adoption and digital literacy and skills
- Appropriate content and applications

Module 7: Cybersecurity

- Risks and threats in cyberspace
- Policy and legal requirements
- Countermeasures
- National and international collaborative processes
- Case study

Module 8: Capability Development

- Making use of technology to build capacity
- Blended learning formats
- Cultivating critical thinking skills
- Building awareness and educating

Module 9: Insights on Leadership and Governance

- Effective governance (the wheel of governance)
- Standards for the Board

Module 10: Leadership Essentials

- Power, justice and social relations
- Leadership skills, characteristics and traits
- Ethics and decision making
- Engendering trust and confidence

Target Audience

- ✓ Executive leaders in the regulatory environment
- ✓ Board members in the regulatory environment

ICT Regulatory Awareness Course for Functional & Non-Technical Teams

Delivery mode: Virtual or in-person

Course Overview

The information and communication technology (ICT) sector underpins modern economies, enabling connectivity, digital services, innovation, and social inclusion. As the sector evolves, driven by broadband expansion, mobile ecosystems, cloud computing, and digital platforms, regulatory oversight becomes increasingly complex and critical.

ICT regulators are responsible for ensuring that markets function efficiently, resources such as spectrum are managed effectively, services remain accessible and affordable, and that consumers, data, and national infrastructure are protected. Achieving these outcomes requires not only technical expertise, but also strong institutional support from non-technical and functional teams.

Functional staff, including administrative, clerical, and support personnel, play a vital role in the execution of regulatory mandates. Their work underpins key processes such as licensing, compliance monitoring, stakeholder engagement, documentation, and enforcement workflows. To perform effectively, they require a structured understanding of legal and policy frameworks governing ICT including the domains of regulation and institutional processes.

This course provides a practical, non-technical introduction to the full spectrum of ICT regulation, with a focus on how functional teams contribute to regulatory outcomes. It moves beyond basic ICT awareness to develop regulatory literacy, enabling participants to understand how their roles fit within the broader governance ecosystem.

By the end of the course, participants will be equipped to support regulatory functions with greater clarity, accuracy, and accountability, contributing to a more effective and responsive ICT regulatory environment.

Learning Outcomes

Upon completion of the course, participants should be able to:

- ✓ Understand the mandate and authority of ICT regulators
- ✓ Recognise key regulatory domains and how they interconnect
- ✓ Support licensing, compliance, and enforcement processes
- ✓ Interpret basic regulatory instruments (policies, directives, regulations)
- ✓ Understand market dynamics and competition issues
- ✓ Apply data protection, cybersecurity, and governance principles
- ✓ Engage effectively with stakeholders (operators, public, government)
- ✓ Understand how their role contributes to regulatory outcomes

Course Structure/Modules

Module 1: Foundations of ICT Regulation

- Purpose of regulation (market failure, public interest)
- Types of regulation: economic, technical, social
- Role of national regulatory authorities
- Relationship with government and policy makers

Module 2: Legal and Policy Frameworks

- Laws vs regulations vs guidelines
- Policy development lifecycle
- Regulatory instruments (licences, directives, standards)
- Administrative law basics (due process, transparency)

Module 3: Licensing and Authorisation Regimes

- Types of licences (individual, class, general authorisations)
- Licensing lifecycle (application → approval → renewal)
- Rights and obligations of licensees
- Role of non-technical staff in licensing workflows

Module 4: Market Structure and Competition Regulation

- ICT market structure (operators, ISPs, OTTs)
- Competition issues (dominance, anti-competitive practices)
- Tariff regulation and price controls
- Consumer protection vs market regulation

Module 5: Spectrum Management and Numbering

- What spectrum is and why it is regulated
- Allocation, assignment, and monitoring
- Numbering plans and allocation
- Administrative processes supporting spectrum governance

Module 6: Infrastructure and Network Regulation

- Interconnection and interoperability
- Infrastructure sharing
- Universal service obligations
- Broadband policy and national infrastructure goals

Module 7: Digital Services and Emerging Technologies

- Regulation of:
 - Cloud services
 - Platforms (OTT, social media)
 - IoT ecosystems
- Policy challenges (cross-border services, jurisdiction)
- Basics of AI and digital platform governance (non-technical)

Module 8: Data Governance, Privacy, and Consumer Protection

- Personal data protection principles
- Regulatory role in privacy enforcement
- Consumer rights in ICT services
- Complaint handling as a regulatory function (not just service)

Module 9: Cybersecurity and Resilience (Regulatory Perspective)

- Role of regulators in national cybersecurity
- Incident reporting frameworks

- Critical infrastructure protection
- Coordination with national cybersecurity agencies

Module 10: Compliance Monitoring and Enforcement

- Monitoring tools (reports, audits, inspections)
- Types of non-compliance
- Enforcement actions (warnings, penalties, revocation)
- Role of administrative staff in enforcement workflows

Module 11: Stakeholder Engagement and Institutional Communication

- Working with:
 - Operators
 - Government
 - Public
 - International bodies
- Consultation processes
- Handling official communications and records

Module 12: Governance, Ethics, and Accountability

- Regulatory independence and integrity
- Conflict of interest
- Transparency and accountability mechanisms
- Records management and audit readiness

Module 13: Internal Operations in a Regulatory Authority

- Workflow awareness across departments
- Documentation and reporting structures
- Decision-making processes
- Supporting regulatory outputs

Target Audience

- ✓ Administrative assistants
- ✓ Receptionists
- ✓ Consumer relations officers
- ✓ Customer service staff
- ✓ Clerical and support staff in regulatory environments

Parliamentary Leadership in the Digital Age: AI, Data Protection, Cybersecurity and Emerging Technologies Masterclass

Delivery mode: Virtual or in-person

Course Overview

This five-day masterclass is designed to equip Members of Parliament with the strategic knowledge required to understand, debate, legislate, and provide oversight on key digital transformation issues affecting governments, economies and citizens.

The course focuses on four critical areas: Artificial Intelligence, emerging technologies, data protection and cybersecurity. It is designed from a non-technical, policy-oriented perspective, enabling parliamentarians to understand the opportunities, risks and governance implications of digital technologies.

Participants will explore how digital technologies are reshaping public services, economic competitiveness, national security, citizen rights, labour markets and democratic governance. The masterclass will also provide practical tools for parliamentary oversight, law-making, policy scrutiny and public accountability.

The course combines theory, practical use cases, and strategy discussions tailored to the needs of CTO member states.

Learning Outcomes

By the end of the masterclass, participants will be able to:

- ✓ Understand the role of AI and emerging technologies in national development and public sector transformation
- ✓ Assess the policy, ethical, legal and regulatory implications of digital technologies
- ✓ Understand the importance of data protection, privacy and responsible data governance
- ✓ Examine cybersecurity risks affecting governments, citizens, businesses and critical national infrastructure
- ✓ Strengthen parliamentary oversight of digital transformation programmes, ICT budgets, cyber resilience and technology regulation
- ✓ Contribute meaningfully to debates on AI governance, digital rights, cybersecurity legislation and national digital strategies
- ✓ Identify key questions parliamentarians should ask when reviewing digital policies, laws, budgets and technology projects

Course Structure/Modules

Module 1: Digital Transformation and Emerging Technologies

- Opening, Context Setting and Parliamentary Relevance
- Understanding the Digital Economy
- Overview of Emerging Technologies
- Governance Opportunities and Risks of Emerging Technologies
- Parliamentary Oversight of Digital Transformation

Module 2: Artificial Intelligence, Ethics and Governance

- Introduction to Artificial Intelligence
- AI Applications in Government and Society
- AI Risks, Ethics and Public Trust
- AI Governance and Regulation

Module 3: Data Protection, Privacy and Digital Rights

- Introduction to Data Governance
- Principles of Data Protection
- Privacy, Digital Rights and Citizen Trust
- Data Protection Laws and Institutions

Module 4: Cybersecurity, Cybercrime and National Resilience

- Introduction to Cybersecurity
- Cyber Threats and Cybercrime
- Critical Infrastructure and National Cyber Resilience
- Cybersecurity Laws, Strategies and Institutions

Module 5: Parliamentary Digital Governance, Policy and Legislative Action

- The Role of Parliament in Digital Governance
- Digital Policy and Legislative Development
- Scrutinising Technology Budgets and Procurement
- Building a National Digital Governance Framework
- Parliamentary Digital Governance Action Plan

Target Audience

- ✓ Members of Parliament
- ✓ Parliamentary Committee Members
- ✓ Speakers and Deputy Speakers of Parliament
- ✓ Parliamentary Clerks and Senior Parliamentary Officials
- ✓ Policy Advisers and Legislative Researchers
- ✓ Members of ICT, Communications, Security, Legal Affairs, Finance, Public Accounts and Governance Committees
- ✓ Government Ministers and Deputy Ministers involved in digital transformation
- ✓ Senior public officials responsible for ICT, cybersecurity, data protection and innovation policy
- ✓ Regulators and policymakers working on digital governance
- ✓ Parliamentary staff supporting law-making, oversight, research and committee

SECTION 2

Leadership, Management and Professional Qualifications

This section features programmes designed to strengthen leadership capability, management effectiveness and professional competence across the ICT and telecommunications sector. The courses equip professionals and executives with practical knowledge, strategic perspectives and management tools to lead teams, manage change, make informed decisions and navigate an increasingly complex digital environment.

Strategic Telecommunications Management for Executives

Delivery mode: Virtual or in-person

Course Overview

The telecommunications industry continues to evolve at an unprecedented pace, driven by rapid technological advancements, increasing data demand, and the convergence of digital services. For executives, this dynamic environment presents both strategic opportunities and complex operational challenges that require informed, forward-looking decision-making.

This course is designed to provide senior leaders with a comprehensive and strategic perspective of the telecommunications sector, integrating key technical concepts with business, financial, and regulatory considerations. It draws on the core principles of the Diploma in Telecommunications Management Studies (DTMS), while focusing on executive-level insights and practical application.

Through a structured and interactive approach, the programme enables participants to better understand how telecommunications technologies, market forces, and policy frameworks influence organisational performance and long-term competitiveness.

Learning Outcomes

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

- ✓ Develop a strategic understanding of the telecommunications industry structure and value chain
- ✓ Interpret key telecommunications technologies and their implications for business performance
- ✓ Analyse market trends, competitive dynamics, and revenue models within the telecom sector
- ✓ Evaluate infrastructure investment decisions, including spectrum and network planning considerations
- ✓ Assess and mitigate cybersecurity risks and operational vulnerabilities
- ✓ Navigate telecommunications policy, regulatory, and governance frameworks
- ✓ Evaluate the impact of emerging technologies on business models and service delivery
- ✓ Lead organisational transformation and change initiatives effectively

Course Structure/Modules

Module 1: Telecommunications Industry and Strategic Context

- Industry structure, stakeholders, and value chain
- Evolution of telecommunications and digital convergence
- Strategic challenges and opportunities in a competitive landscape

Module 2: Telecommunications Technologies and Network Architecture

- Overview of fixed, mobile, and IP-based networks
- Key components of telecommunications infrastructure
- Strategic implications of technology choices

Module 3: Next Generation Networks and Interconnectivity

- NGN, virtualisation, and cloud-based network models

- Network interconnection and ecosystem partnerships
- Enabling service innovation and scalability

Module 4: Spectrum Management and Network Planning

- Spectrum as a strategic and economic resource
- Fixed and wireless network planning considerations
- Infrastructure investment and deployment strategies

Module 5: Telecommunications Markets, Business Models and Finance

- Market structures and competitive positioning
- Revenue models, pricing strategies, and cost structures
- Financial performance indicators and investment analysis

Module 6: Cybersecurity and Risk Management

- Key cybersecurity threats and vulnerabilities in telecoms
- Risk management frameworks and mitigation strategies
- Business continuity and resilience planning

Module 7: Policy, Regulation and Governance

- Regulatory frameworks and compliance requirements
- Role of regulators and policy development
- Impact of regulation on competition and innovation

Module 8: Emerging Technologies and Innovation as Catalysts for Strategic Transformation in Telecoms

- 5G, IoT, artificial intelligence, cloud and edge computing
- Innovation strategy and model reinvention
- Innovation ecosystems and strategic partnerships
- Digital transformation in telecommunications organisations

Target Audience

- ✓ Senior executives and managers in telecommunications and ICT organisations
- ✓ Leaders responsible for strategy, operations, finance, or transformation initiatives
- ✓ Managers transitioning into telecommunications or digital infrastructure roles
- ✓ Non-technical executives seeking a structured understanding of telecom technologies and their business implications
- ✓ Decision-makers involved in digital transformation, investment planning, and regulatory engagement

Applied Telecommunications Management – Masterclass

Delivery mode: Virtual or in-person

Course Overview

The Applied Telecommunications Management Masterclass is a practical 5-day programme designed to provide participants with a strong understanding of the telecommunications sector, including its technical foundations, regulatory environment, market dynamics, emerging technologies, customer service requirements, cybersecurity risks and business management practices.

The course is based on the core areas identified in the DTMS brochure, which combines technical modules such as telecoms fundamentals, spectrum management, network planning, telecom markets, next generation networks, cybersecurity, policy and regulation, with business management modules such as strategic management, marketing, customer service, financial management, project management, change management and business communication.

The masterclass is suitable for both technical and non-technical employees and is designed to help participants understand how telecommunications organisations operate, how services are managed, how regulatory and market issues affect the sector, and how employees can contribute more effectively to organisational and sector performance.

Learning Outcomes

By the end of the masterclass, participants will be able to:

- ✓ Explain the structure, role and importance of the telecommunications sector
- ✓ Describe key telecommunications networks, services, technologies and market trends
- ✓ Understand the principles of spectrum management, network planning and interconnection
- ✓ Explain the role of telecommunications policy, regulation and compliance
- ✓ Identify the impact of emerging technologies on telecom operations, markets and service delivery
- ✓ Recognise key cybersecurity, risk management and business continuity issues in telecommunications
- ✓ Apply basic business, customer service, financial and project management concepts in a telecom environment
- ✓ Communicate telecom-related issues, challenges and recommendations more effectively
- ✓ Develop practical solutions to common operational, regulatory or business challenges in the telecommunications sector

Course Structure/Modules

Module 1: Telecommunications Sector Fundamentals

- Overview of the telecommunications sector
- Role of telecommunications in economic and digital development
- Key sector stakeholders: operators, regulators, policymakers, consumers and service providers
- Fixed, mobile, broadband and digital infrastructure
- Telecommunications value chain
- Basic telecom terminology and concepts

Module 2: Telecom Networks, Services and Infrastructure

- Basic network architecture
- Access, core and transmission networks
- Fixed and wireless networks
- Mobile communications and broadband services
- Voice, data and internet services
- Network quality, coverage and service reliability

Module 3: Spectrum Management and Wireless Network Planning

- Introduction to radio spectrum
- Spectrum as a scarce national resource
- Spectrum allocation and assignment
- Spectrum licensing and authorisation
- Interference management
- Fixed and wireless network planning
- Spectrum efficiency and monitoring

Module 4: Telecom Markets, Competition and Interconnection

- Structure of telecom markets
- Market players and service providers
- Competition in telecommunications
- Wholesale and retail services
- Network interconnection
- Infrastructure sharing
- Pricing, access and market regulation

Module 5: Telecommunications Policy and Regulation

- Purpose of telecommunications policy
- Role of the regulator
- Licensing and compliance frameworks
- Universal access and service obligations
- Consumer protection
- Quality of service regulation
- Regulatory challenges in a converged digital environment

Module 6: Emerging Technologies and Digital Transformation

- Next generation networks
- 5G and advanced connectivity
- Internet of Things
- Artificial Intelligence in telecommunications
- Cloud computing and edge computing
- Big data and analytics
- Digital platforms and new service models
- Impact of emerging technologies on regulation and operations

Module 7: Cybersecurity, Risk Management and Business Continuity

- Cybersecurity risks in telecommunications
- Protection of critical information infrastructure
- Data protection and digital trust
- Cyber incident response
- Risk identification and mitigation
- Business continuity planning
- Organisational resilience

Module 8: Telecommunications Customer Service, Marketing and Sales

- Customer service in telecommunications
- Customer experience management
- Service quality and customer satisfaction
- Customer complaints and service recovery
- Telecom marketing principles
- Customer segmentation
- Sales and revenue growth
- Customer retention strategies

Module 9: Financial, Business Case and Project Management

- Basic telecom financial management
- Telecom cost and revenue structures
- Budgeting and financial planning
- Business case development
- Investment justification
- Project planning and implementation
- Project risks, timelines and resources
- Monitoring and reporting project progress

Module 10: Business Transformation, Change Management and Communication

- Business transformation in telecommunications
- Organisational change management
- Managing resistance to change
- Workforce capability and skills development
- Stakeholder engagement
- Business communication
- Report writing and executive briefing
- Presenting telecom issues and recommendations

Target Audience

- ✓ Telecommunications officers and administrators
- ✓ Technical and non-technical employees in telecom organisations
- ✓ Regulators and regulatory authority staff
- ✓ Policymakers and public sector officials
- ✓ Supervisors, team leaders and middle-level managers
- ✓ Customer service, marketing and sales employees
- ✓ IT and network support staff
- ✓ Project officers and programme coordinators
- ✓ Employees newly assigned to telecommunications-related roles
- ✓ Professionals seeking a practical understanding of telecommunications management
- ✓ Staff from ministries, regulators, operators and ICT sector institutions

Diploma in Telecommunications Management Studies (DTMS)

Delivery mode: Virtual or in-person

Course Overview

The telecommunications sector is among the fastest growing in the world today. Driven by rapid technological innovation, and customers' insatiable requirements for efficiency and speed, the industry is constantly changing and evolving. This rapid pace presents immense business challenges for organisations involved in the sector as it is difficult to keep abreast of the developments and to understand its potential impact on its operations and products.

The Diploma in Telecommunications Management Studies (DTMS) course is designed to provide participants with the knowledge and the skills that will enhance their ability to master the changes in the business and technical environment for operational effectiveness. The course will examine the essential elements of technology evolution, emerging and immersive technologies which have disrupted and are dismantling the traditional institutional, legal and regulatory frameworks.

Participants in the DTMS course will help better understand the challenges of creating enterprise value and will be provided with tools for effective telecommunications management. The practical, hands-on approach of this DTMS course will lay a significant foundation of the telecommunications industry while it challenges participants to embrace change through its interactive and enriching sessions.

The DTMS is an internationally recognised course that is accredited by United Kingdom Telecommunications Academy (UKTA).

Learning Outcomes

- ✓ Assimilate ICT industry knowledge and acquire skills to manage ICT organisations
- ✓ Gain in-depth knowledge on telecommunications fundamentals
- ✓ Understanding of cybersecurity essentials and network interconnect
- ✓ Understanding of spectrum management, fixed wireless and networks planning
- ✓ Gain understanding and understanding of the emerging and enabling technologies
- ✓ Understanding of the telecommunications markets, financial management
- ✓ Gain knowledge on managing business projects and transformation
- ✓ Understanding of strategic management in a telecommunications environment

Course Structure/Modules

Technical Modules

- Telecoms Fundamentals (TF)
- Spectrum Management (SM), Fixed and Wireless Networks Planning (FWNP)
- Telecom Markets (TN), Next Generation Network (NGN) Services & Impact on Network Resources (INR)
- Network Interconnect (NI)
- Cybersecurity
- Telecoms Policy and Regulation (TPR)
- Emerging and Enabling Technologies (EET)
- Risk Management and Business Continuity (RMBC)

Business Modules

- Business Environment & Strategic Management (BESM)
- Telecommunication Marketing & Sales (TMS)
- Customer Service Management (CSM)
- Strategic Human Resources Management (SHRM)
- Telecommunications Financial Management (TFM)
- Business Case & Project Management (BCPM)
- Business Transformation & Change Management (BTCM)
- Business Communication (BC)

Course Benefits

- ✓ Internationally recognised qualification
- ✓ Gain credits that give access to undergraduate courses or professional courses

Target Audience

- ✓ Anyone new to telecommunications

Postgraduate Certificate in ICT Policy and Regulation

Delivery mode: Virtual or in-person

Course Overview

The Postgraduate Certificate in ICT Policy and Regulation is an advanced, professionally focused programme designed to equip participants with the knowledge and skills required to operate effectively in today's complex and rapidly evolving digital landscape. As telecommunications, digital platforms, and emerging technologies continue to converge, regulators and policy makers must address increasingly sophisticated challenges. This course provides a comprehensive understanding of how ICT policies and regulatory frameworks are developed, implemented, and evaluated at national and international levels.

The 16 weeks (part-time, flexible) programme places strong emphasis on key regulatory domains, including spectrum management, emerging technologies (such as AI, IoT, and 5G), satellite communications, and digital policy and legal frameworks. Participants will explore critical issues such as spectrum allocation and licensing, data governance, cybersecurity, competition regulation, and the role of satellite systems in expanding connectivity. Through an interdisciplinary approach drawing on law, economics, and technology, learners will develop the ability to critically analyse regulatory challenges and assess policy options.

A distinctive feature of the programme is its outcome-based approach, combining theoretical learning with real-world case studies and a capstone policy project. Designed for professionals in regulatory authorities, government, and industry, the course enables participants to develop evidence-based policy solutions and strengthen their capacity to contribute to regulatory reform and digital transformation initiatives within their organisations.

Learning Outcomes

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

- ✓ Analyse the principles and frameworks underpinning ICT regulation and governance
- ✓ Evaluate spectrum management strategies, including licensing, allocation, and pricing models
- ✓ Assess the regulatory implications of emerging technologies such as AI, IoT, and 5G
- ✓ Interpret and apply national and international ICT policy and legal frameworks
- ✓ Examine the role of satellite technologies in bridging connectivity gaps and enabling global communications
- ✓ Critically assess regulatory challenges related to competition, cybersecurity, and data governance
- ✓ Design and propose evidence-based ICT policies and regulatory interventions
- ✓ Engage effectively with stakeholders across government, industry, and international bodies

Course Structure/Modules

Module 1: Foundations of ICT Policy and Regulation

- Principles of ICT regulation
- Role of regulatory authorities
- Market structures and competition policy

Module 2: Legal and Policy Frameworks

- National ICT laws and regulatory instruments

- International frameworks (e.g., ITU, WTO)
- Regulatory governance and institutional design

Module 3: Spectrum Management and Radio Communications

- Spectrum allocation and assignment methods
- Licensing models (auctions, administrative allocation)
- Spectrum sharing and efficiency
- 5G and future spectrum needs

Module 4: Emerging Technologies and Regulation

- Artificial Intelligence (AI) and regulatory considerations
- Internet of Things (IoT) ecosystems
- Fintech and digital platforms
- Regulatory sandboxes and innovation frameworks

Module 5: Satellite and Space Based Communications

- Satellite systems and technologies
- Regulatory frameworks for satellite communications
- Low Earth Orbit (LEO) constellations
- Universal access and rural connectivity

Module 6: Digital Economy and Data Governance

- Data protection and privacy laws
- Cybersecurity regulation
- Cross-border data flows
- Digital trade and platform regulation

Module 7: Regulatory Practice and Case Studies

- Comparative regulatory approaches (developed vs developing markets)
- Case studies on spectrum auctions, broadband policy, and platform regulation
- Stakeholder engagement and policy consultation

Module 8: Capstone Project / Policy Lab

- Development of a policy or regulatory proposal
- Real-world problem-solving
- Presentation and peer review

Target Audience

- ✓ Staff of national regulatory authorities (NRAs)
- ✓ Policy makers in government ministries (ICT, communications, digital economy)
- ✓ Professionals in telecommunications operators and service providers
- ✓ Legal and regulatory affairs specialists
- ✓ Consultants and advisors in ICT policy and regulation
- ✓ Professionals in international organisations and development agencies
- ✓ Early to mid-career professionals seeking specialisation in ICT governance

Digital Transformation & Innovation: From Strategy to Impact

Delivery mode: Virtual or in-person

Course Overview

Digital transformation is not simply about adopting new technologies, it is a complex, multi-stakeholder journey that requires cultural change, strategic alignment, and continuous innovation. While investments in digital technologies have increased globally, many organisations still struggle to realise tangible returns in terms of growth, efficiency, and competitive advantage. This course addresses that gap by focusing on how to translate digital ambition into measurable outcomes.

This course provides a comprehensive and practical understanding of digital transformation and innovation, equipping participants with the strategic, technical, and leadership capabilities required to drive impactful change within organisations and governments.

Participants will learn how to assess organisational readiness, define a clear digital vision, and design transformation strategies aligned with national and organisational priorities. The course explores how emerging technologies, such as Artificial Intelligence, Internet of Things (IoT), and cloud computing, can be effectively leveraged to re-engineer processes, improve service delivery, and enhance user experiences.

In addition, the course emphasises the importance of governance, stakeholder engagement, and change management in ensuring successful implementation. Participants will gain insights into building digital capabilities, fostering a culture of innovation, and developing inclusive approaches that raise awareness and support at both organisational and national levels.

Through practical frameworks, tools, and real-world applications, this course enables participants to move from strategy to execution, designing and implementing digital transformation initiatives that contribute to organisational performance and broader digital development goals.

Learning Outcomes

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

- ✓ Assess organisational readiness for digital transformation
- ✓ Design and implement digital strategies aligned with organisational/national priorities
- ✓ Leverage emerging technologies such as AI, IoT, and cloud computing
- ✓ Manage change, stakeholders, and organisational culture
- ✓ Drive innovation and build sustainable digital ecosystems
- ✓ Participants will also explore why many digital investments fail to deliver expected returns and how to bridge that gap through effective planning, governance, and execution

Course Structure/Modules

Module 1: Foundations of Digital Transformation & Innovation

- Definition and scope of digital transformation
- Key drivers and global trends
- Digital transformation vs. digitalisation
- Building a transformation vision and strategy
- Creating a culture of innovation

Module 2: Designing a Digital Transformation Framework

- Developing a bespoke transformation framework
- Strategic alignment with organisational and national goals
- Building multifunctional teams
- Communication and stakeholder engagement strategies
- Securing leadership buy-in

Module 3: Digital Strategy & Implementation Roadmap

- Assessing internal and external environments
- Identifying gaps, risks, and opportunities
- Designing phased transformation programmes
- Business architecture and solution design
- Monitoring and impact assessment

Module 4: Innovation & Emerging Technologies

- Overview of key technologies:
 - Artificial Intelligence & Machine Learning
 - Internet of Things (IoT)
 - Cloud computing
 - Robotics & automation
 - Digital twins & AR
- Selecting the right technologies for impact
- Integrating innovation into organisational strategy

Module 5: E-Government & Digital Service Delivery

- E-government models (UN, Wescott)
- Digital public services design
- Tools for digital service delivery:
 - CRM systems
 - Document management systems
 - Workflow automation tools
- Enhancing citizen experience

Module 6: Managing Digital Transformation Projects

- Budgeting and cost optimisation strategies
- Leveraging off-the-shelf solutions
- Resource allocation and investment planning
- Measuring ROI and digital value

Module 7: Change Management & Organisational Transformation

- Developing change roadmaps
- Managing resistance and organisational culture
- Aligning processes and people
- Building digital skills and capacity

Module 8: Leadership in the Digital Age

- Leading transformation initiatives
- Cultivating a growth mindset
- Driving collaboration across teams
- Innovation leadership and decision-making

Module 9: Tools, Templates & Practical Application

- Transformation frameworks and templates
- Use cases and best practices
- Developing a digital transformation roadmap (hands-on exercise)

Target Audience

- ✓ Government officials and policymakers
- ✓ ICT and digital transformation leaders
- ✓ Project and programme managers
- ✓ Innovation and strategy teams
- ✓ Regulators and public sector agencies
- ✓ Private sector professionals involved in digital transformation

Leading for Impact Masterclass for ICT Regulators

Delivery mode: Virtual or in-person

Course Overview

The relentless pace of innovation in Information and Communication Technologies (ICT) is disrupting traditional regulatory frameworks and business models. In this dynamic landscape, regulators must creatively balance consumer protection, fair market conditions, and investment encouragement without hindering innovation. This necessitates robust leadership skills.

Every appointed manager brings a unique set of technical skills, knowledge, and expertise to the table, qualifying them to strategise, plan, and execute functions that propel their organisation's strategic goals forward.

As leaders, managers are tasked with inspiring and influencing their teams to reach their full potential. They are responsible for cultivating an environment that empowers team members to excel while aligning with organisational objectives.

Our Leading for Impact Masterclass' is a comprehensive programme, customised and contextualised for middle and senior management in the regulatory environment. It aims to help participants navigate the ICT regulatory landscape and understand the balancing act regulators play between consumer needs and political directives. The course provides insights into the industry's ecosystem, political mindset, and prepares participants to thrive in the ever-evolving technological and economic landscape.

Designed to unlock participants' personal power, the course enhances self-awareness, resilience, and confidence in an uncertain environment. It helps participants understand team dynamics and equips them with tools to manage diverse personality traits effectively.

The course adopts a practical, hands-on, interactive approach that challenges, broadens, and enriches participants' perspectives. It includes pre and post-programme coaching sessions for a holistic learning experience.

If you're a regulator who aspires to be a successful leader or seeks to enhance your leadership skills, this course is tailor-made for you!

Learning Outcomes

Upon completion of the course, participants shall have a:

- ✓ A full understanding of their role and responsibility as regulatory managers
- ✓ A better understanding of themselves and how they lead and manage
- ✓ Tools for understanding how to better communicate within the political and operator arenas
- ✓ Better understand the key elements of regulatory organisational effectiveness
- ✓ The key skills required to be effective within a regulatory agency
- ✓ The differences between management and Leadership and the skills required for each
- ✓ The ability to better mentor and coach their teams
- ✓ What is required of regulator leaders in the changing technology and economic. landscape

Course Structure/Modules

Pre-programme and Leadership Audit Assessment

Before the programme begins, each participant will complete the following onboarding and leadership assessment activities:

- Onboarding and induction
- Pre-workshop reading and exercises, including book summaries and mini-courses
- 360-degree feedback audit session
- DISC behavioural assessment
- Pre-programme coaching session

Module 1: Leadership Foundations

- The executive leadership mindset
- End-game and pathway-to-a-desired-future exercise
- The art, science and practice of leading with emotional intelligence
- Me, my style and my impact

Module 2: Practising Leadership

- The five practices of exemplary leadership
- Improving leadership communication delivery
- Building executive presence
- Developing an executive development plan

Module 3: Leadership Essentials

- Maintaining ethical leadership standards
- Managing political and government stakeholders
- Leading organisational change effectively
- Building high-performing teams
- Mentoring and coaching as tools for capacity-building and improved effectiveness

Post-programme Coaching and Assessment

After completing the programme, each executive leader will receive:

- Three one-to-one coaching sessions

Modules for Senior and Executive Managers

Pre-programme and Leadership Audit Assessment

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- Onboarding and induction
- Pre-workshop reading and exercises, including book summaries and mini-courses
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- DISC behavioural assessment
- A pre-programme coaching session

Module 1: Leadership Foundations

- The executive leadership mindset

- An end-game and pathway-to-a-desired-future exercise
- The art, science and practice of leading with emotional intelligence
- Understanding myself, my leadership style and my impact

Module 2: Practising Leadership

- The five practices of exemplary leadership
- Improving leadership communication and delivery
- Building executive presence
- Developing a personal executive development plan

Module 3: Leadership Essentials

- Maintaining ethical leadership standards
- Managing political and government stakeholders
- Leading organisational change effectively
- Building high-performing teams
- Using mentoring and coaching as tools for capacity-building and improved effectiveness

Post-programme Coaching and Assessment

After completing the programme, each executive leader will receive:

- Three one-to-one coaching sessions

Course Benefits

- ✓ Customised and tailor made for the Regulatory Management teams
- ✓ Pre and Post programme coaching and assessment
- ✓ Access to online video series for each module

Target Audience

- ✓ First line and middle management
- ✓ Senior and executive management

SECTION 3

CTO x K Labs AI and Digital Skills Academy

The Academy combines the CTO's trusted Commonwealth network and institutional relationships with K Labs' AI content, learning technology and certification capability. The portfolio supports practical AI adoption for employment, entrepreneurship, public administration, regulation, telecommunications and enterprise transformation. The partnership offer is organised around six audience-led packages. Each package combines relevant courses, practical assignments, tools and certification pathways. Organisations may select a complete package or request a tailored learning pathway.

Package 1: AI Skills for Employment

Discovering Artificial Intelligence

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This introductory course provides a practical understanding of artificial intelligence and its growing influence across organisations. It traces the evolution of AI from machine learning to generative AI and shows how these technologies can improve decision-making, streamline processes and support innovation. Through accessible examples and business use cases, participants will learn where AI creates value, where human judgement remains essential and how to begin identifying responsible opportunities for adoption.

Learning Outcomes

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

- ✓ Explain the core concepts and evolution of artificial intelligence
- ✓ Distinguish between machine learning, deep learning and generative AI
- ✓ Identify practical AI applications across common business functions
- ✓ Assess the benefits, limitations and risks of using AI at work
- ✓ Identify priority opportunities for responsible AI adoption in their organisation

Course Structure/Modules

- Module 1: Understanding Artificial Intelligence
- Module 2: From Machine Learning to Generative AI
- Module 3: AI Applications Across the Business
- Module 4: Benefits, Risks and Responsible Use
- Module 5: Identifying AI Opportunities and Next Steps

Target Audience

- ✓ Managers
- ✓ Administrative professionals
- ✓ Business leaders
- ✓ Policy and strategy teams
- ✓ Employees from any function who require a non-technical introduction to AI

Professional Prompt Engineering with Gemini

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This practical course equips professionals to use Google Gemini effectively across the web application and Google Workspace. Participants learn structured prompting techniques and apply them to content creation in Docs, analysis in Sheets, correspondence in Gmail and information held in Drive. The course emphasises clear instructions, contextual grounding, output verification and responsible handling of organisational data to improve productivity and decision-making.

Learning Outcomes

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

- ✓ Apply a structured method to write clear and effective prompts for Gemini
- ✓ Use Gemini to draft, revise, summarise and transform professional content
- ✓ Apply Gemini within Docs, Sheets, Gmail and Drive-supported workflows
- ✓ Convert meeting information and source material into useful deliverables
- ✓ Evaluate Gemini outputs for accuracy, relevance, privacy and responsible use

Course Structure/Modules

- Module 1: Gemini Ecosystem and Capabilities
- Module 2: The Anatomy of an Effective Prompt
- Module 3: Gemini for Writing and Communication
- Module 4: Gemini for Data and Workspace Productivity
- Module 5: Integrated Workflows, Verification and Responsible Use

Target Audience

- ✓ Professionals
- ✓ Managers
- ✓ Analysts
- ✓ Administrators
- ✓ Teams using Google Workspace who want to improve productivity through Gemini

Professional Prompt Engineering with ChatGPT

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This hands-on course develops the skills required to use ChatGPT for professional problem-solving, content development and data-informed work. Participants learn structured prompting, iterative refinement, advanced data analysis and the design of tailored AI assistants. Practical exercises focus on producing consistent, high-quality outputs while managing accuracy, confidentiality and human oversight.

Learning Outcomes

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

- ✓ Design structured prompts that produce relevant and reliable outputs
- ✓ Use iterative prompting to improve clarity, depth and consistency
- ✓ Apply ChatGPT to research, writing, analysis and visualisation tasks
- ✓ Design a tailored assistant or Custom GPT for a defined team need
- ✓ Verify outputs and apply appropriate privacy and governance safeguards

Course Structure/Modules

- Module 1: ChatGPT Capabilities and Responsible Use
- Module 2: Structured Prompting Techniques
- Module 3: Reasoning, Research and Content Workflows
- Module 4: Advanced Data Analysis and Visual Outputs
- Module 5: Building Tailored AI Assistants

Target Audience

- ✓ Professionals
- ✓ Managers
- ✓ Analysts
- ✓ Content creators
- ✓ Operational teams seeking to integrate ChatGPT into everyday knowledge work

Professional Prompt Engineering with Copilot

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This course shows professionals how to use Microsoft Copilot across the Microsoft 365 environment. Participants learn to combine effective prompts with organisational context to draft documents, analyse spreadsheets, manage meetings and create presentations. The course focuses on cross-application workflows, output validation and secure, responsible use of enterprise information.

Learning Outcomes

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

- ✓ Write effective prompts for Microsoft Copilot
- ✓ Use Copilot in Word, Excel, PowerPoint, Outlook and Teams
- ✓ Summarise meetings and convert discussions into actions and deliverables
- ✓ Build cross-application workflows that reduce administrative effort
- ✓ Review Copilot outputs for accuracy, security and appropriate use

Course Structure/Modules

- Module 1: Copilot, Microsoft Graph and Enterprise Context
- Module 2: Prompting Principles for Microsoft 365
- Module 3: Copilot in Word, Outlook and Teams
- Module 4: Copilot in Excel and PowerPoint
- Module 5: Cross-Application Workflows and Governance

Target Audience

- ✓ Microsoft 365 users
- ✓ Managers
- ✓ Administrators
- ✓ Analysts
- ✓ Teams seeking to improve individual and organisational productivity

AI for Education

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This course explores how generative AI can enhance teaching, training and learning design. Participants use structured prompting to create learning materials, assessments, personalised pathways, tutoring support and meaningful feedback. Guided activities address instructional quality, accessibility, academic integrity, data privacy and the educator's responsibility for reviewing AI-generated content.

Learning Outcomes

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

- ✓ Explain the opportunities and limitations of generative AI in education
- ✓ Create learning content and activities using structured prompts
- ✓ Design assessments, feedback and personalised learning support
- ✓ Evaluate AI-generated materials for quality, accessibility and bias
- ✓ Apply academic-integrity, privacy and responsible-use principles

Course Structure/Modules

- Module 1: Generative AI in Teaching and Learning
- Module 2: AI-Assisted Learning Design and Content Creation
- Module 3: Assessments, Feedback and Tutoring Support
- Module 4: Personalisation, Inclusion and Learner Engagement
- Module 5: Academic Integrity, Privacy and Educator Oversight

Target Audience

- ✓ Teachers
- ✓ Lecturers
- ✓ Trainers
- ✓ Instructional designers
- ✓ Learning and development practitioners
- ✓ Education administrators

AI for Project Management

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This course treats prompt engineering as a practical management capability for complex projects. Participants use generative AI to support project definition, planning, risk and dependency analysis, stakeholder communication and progress reporting. Scenario-based exercises show how to gain speed and clarity without weakening governance, evidence or the project manager's accountability.

Learning Outcomes

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

- ✓ Identify valuable AI applications across the project lifecycle
- ✓ Use prompts to clarify scope, requirements and work plans
- ✓ Apply AI to risk, dependency and stakeholder analysis
- ✓ Produce concise project communications and progress summaries
- ✓ Introduce AI into project workflows with appropriate verification and governance

Course Structure/Modules

- Module 1: AI Across the Project Lifecycle
- Module 2: Scope, Requirements and Planning
- Module 3: Risk, Dependencies and Decision Support
- Module 4: Stakeholder Communication and Progress Tracking
- Module 5: Governance, Verification and Practical Workflow Design

Target Audience

- ✓ Project managers
- ✓ Programme managers
- ✓ Project officers
- ✓ PMO teams
- ✓ Team leaders
- ✓ Professionals coordinating complex initiatives

Package 2: AI Entrepreneurship

AI for Sales and Business Development

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This hands-on course helps sales and business development professionals use generative AI throughout the commercial cycle. Participants apply structured prompts to lead generation, account research, customer profiling, value propositions, sales messages, proposals and pipeline analysis. Activities focus on improving relevance, speed and consistency while protecting customer information and retaining authentic human engagement.

Learning Outcomes

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

- ✓ Identify AI opportunities across the sales and business development cycle
- ✓ Use AI for lead research, account intelligence and customer profiling
- ✓ Develop tailored value propositions, messages and proposals
- ✓ Apply AI to pipeline analysis and opportunity prioritisation
- ✓ Review commercial outputs for accuracy, privacy, tone and brand alignment

Course Structure/Modules

- Module 1: AI Across the Commercial Cycle
- Module 2: Lead Generation and Account Research
- Module 3: Customer Profiles and Value Propositions
- Module 4: Sales Messaging, Proposals and Follow-Up
- Module 5: Pipeline Insight, Ethics and Data Protection

Target Audience

- ✓ Sales professionals
- ✓ Business development teams
- ✓ Account managers
- ✓ Commercial managers
- ✓ Entrepreneurs and proposal teams

AI for Marketing

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This practical course develops the ability to use generative AI across marketing, communication and social media. Participants create and test structured prompts for audience analysis, campaign concepts, copywriting, brand storytelling, content planning and performance improvement. The programme balances creative acceleration with brand consistency, intellectual property awareness, factual accuracy and responsible use.

Learning Outcomes

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

- ✓ Use AI to analyse audiences and develop marketing insights
- ✓ Create prompts for campaigns, copy, storytelling and content planning
- ✓ Adapt content consistently across channels and audience segments
- ✓ Use performance information to refine marketing outputs
- ✓ Apply brand, copyright, accuracy and ethical safeguards

Course Structure/Modules

- Module 1: Generative AI in Marketing and Communication
- Module 2: Audience Insight and Campaign Planning
- Module 3: Copywriting and Brand Storytelling
- Module 4: Social Media and Multi-Channel Content
- Module 5: Optimisation, Brand Control and Responsible Use

Target Audience

- ✓ Marketing professionals
- ✓ Communication team
- ✓ Social media managers
- ✓ Brand specialists
- ✓ Content creators
- ✓ Campaign managers

AI for Customer Service

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This course equips customer service and support teams to apply generative AI in customer-facing operations. Participants develop prompts for ticket classification, response drafting, knowledge-base enrichment, sentiment analysis, escalation and service-quality monitoring. Realistic scenarios show how AI can improve responsiveness and consistency while maintaining empathy, privacy and appropriate human escalation.

Learning Outcomes

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

- ✓ Identify suitable AI uses across customer service workflows
- ✓ Use prompts to analyse tickets and draft accurate customer responses
- ✓ Create and improve knowledge-base content
- ✓ Apply sentiment analysis and escalation criteria appropriately
- ✓ Monitor quality while protecting customer data and maintaining human oversight

Course Structure/Modules

- Module 1: AI in the Customer Service Journey
- Module 2: Ticket Analysis and Response Drafting
- Module 3: Knowledge-Base Development
- Module 4: Sentiment, Escalation and Service Recovery
- Module 5: Quality, Privacy and Human-Centred Service

Target Audience

- ✓ Customer service agents
- ✓ Contact-centre supervisors
- ✓ Support teams
- ✓ Service-quality professionals
- ✓ Customer-experience managers

Package 3: Corporate AI Readiness

AI for Managers

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

Designed for executives and managers, this course positions generative AI and prompt engineering as practical leadership capabilities. Participants use AI to strengthen strategic analysis, scenario planning, competitive intelligence, decision framing and executive communication. The programme also addresses governance, human accountability and the conditions required to lead responsible AI adoption.

Learning Outcomes

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

- ✓ Explain the strategic relevance and limitations of generative AI
- ✓ Use prompts to support analysis, scenario planning and decision framing
- ✓ Apply AI to competitive intelligence and executive communication
- ✓ Evaluate AI-supported recommendations using sound managerial judgement
- ✓ Define responsible leadership actions for organisational AI adoption

Course Structure/Modules

- Module 1: AI as a Strategic Management Capability
- Module 2: Prompting for Analysis and Insight
- Module 3: Scenario Planning and Decision Support
- Module 4: Competitive Intelligence and Executive Communication
- Module 5: Governance, Adoption and Leadership Action

Target Audience

- ✓ Executives
- ✓ Senior managers
- ✓ Business-unit leaders
- ✓ Strategy professionals
- ✓ Public-sector decision-makers

AI for Human Resources

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This practical course enables HR and talent professionals to apply generative AI across recruitment, employee communication, talent management and people analytics. Participants develop structured prompts for job descriptions, CV screening, candidate profiles, interview preparation and employer branding. Strong emphasis is placed on fairness, privacy, accuracy and maintaining human accountability in employment decisions.

Learning Outcomes

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

- ✓ Identify high-value and appropriate AI applications across the HR lifecycle
- ✓ Create structured prompts for recruitment and talent acquisition tasks
- ✓ Use AI to support employee communication, employer branding and people analytics
- ✓ Evaluate HR outputs for bias, accuracy, privacy and legal risk
- ✓ Design a responsible AI-enabled HR workflow with human oversight

Course Structure/Modules

- Module 1: Generative AI Across the HR Lifecycle
- Module 2: Job Design, Sourcing and Talent Scouting
- Module 3: CV Screening and Interview Preparation
- Module 4: Employer Branding, Communication and People Analytics
- Module 5: Fairness, Privacy and Responsible HR Use

Target Audience

- ✓ HR practitioners
- ✓ Talent acquisition teams
- ✓ Learning and development professionals
- ✓ People managers and HR leaders

AI for Finance

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This course equips finance and controlling professionals to use generative AI as an analytical and decision-support tool. Through guided exercises, participants develop prompts for financial analysis, reporting, forecasting, variance analysis and management control. The course reinforces the need for validation, traceability, confidentiality and professional judgement when working with financial information.

Learning Outcomes

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

- ✓ Identify suitable AI use cases within finance and controlling
- ✓ Build prompts for financial analysis, reporting and commentary
- ✓ Use AI to support forecasting, variance analysis and management control
- ✓ Evaluate outputs for numerical accuracy, consistency and traceability
- ✓ Apply confidentiality and governance safeguards to AI-enabled finance workflows

Course Structure/Modules

- Module 1: Generative AI in Finance
- Module 2: Prompting for Financial Analysis
- Module 3: Reporting and Management Commentary
- Module 4: Forecasting, Variance Analysis and Control
- Module 5: Validation, Confidentiality and Governance

Target Audience

- ✓ Finance managers
- ✓ Accountants
- ✓ Financial analysts
- ✓ Controllers
- ✓ Auditors
- ✓ Professionals responsible for budgeting and reporting

AI for Legal

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

Designed for legal and compliance professionals, this course explores controlled uses of generative AI in regulated environments. Participants learn to structure prompts for contract review, policy analysis, regulatory interpretation, risk assessment and compliance documentation. Practical scenarios emphasise precision, traceability, confidentiality and the continuing role of qualified legal judgement.

Learning Outcomes

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

- ✓ Identify appropriate and inappropriate uses of AI in legal and compliance work
- ✓ Design prompts for contract, policy and regulatory analysis
- ✓ Use AI to support risk assessments and compliance documentation
- ✓ Check outputs for accuracy, authority, traceability and hidden assumptions
- ✓ Apply confidentiality, governance and human-review controls

Course Structure/Modules

- Module 1: AI Opportunities and Boundaries in Legal Practice
- Module 2: Prompting for Contracts and Policies
- Module 3: Regulatory Interpretation and Legal Research Support
- Module 4: Risk Assessment and Compliance Documentation
- Module 5: Confidentiality, Traceability and Professional Oversight

Target Audience

- ✓ Legal counsel
- ✓ Compliance officers
- ✓ Regulatory affairs teams
- ✓ Contract managers
- ✓ Risk professionals and governance specialists

Package 4: Telecom AI Transformation

AI for IT and Operations

Duration: 1 day | Level: Non-technical | Delivery mode: Virtual or in-person

Course Overview

This practice-oriented course demonstrates how generative AI and prompt engineering can support ICT operations and systems management. Participants apply AI to logs and metrics, incident investigation, troubleshooting, fault prediction, testing and architectural reasoning. Guided labs emphasise technically grounded prompts, evidence-based validation, secure data handling and reliable collaboration between operational teams and developers.

Learning Outcomes

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

- ✓ Identify AI applications across IT service and operations workflows
- ✓ Use AI to analyse logs, metrics and incident information
- ✓ Develop prompts for troubleshooting, testing and fault prediction
- ✓ Apply AI to architectural reasoning and technical documentation
- ✓ Evaluate operational outputs for reliability, security and appropriate escalation

Course Structure/Modules

- Module 1: Generative AI in IT Operations
- Module 2: Logs, Metrics and Incident Analysis
- Module 3: Troubleshooting and Fault Prediction
- Module 4: Testing, Architecture and Technical Documentation
- Module 5: Security, Reliability and Cross-Functional Operations

Target Audience

- ✓ IT operations teams
- ✓ Service managers
- ✓ System administrators
- ✓ Support engineers
- ✓ Developers
- ✓ DevOps practitioners and technical team leaders

Artificial Intelligence Fundamentals

Duration: 2 days | Level: Basic technical | Delivery mode: Virtual or in-person

Course Overview

This foundation course introduces the theory, tools and end-to-end workflow required to understand and build AI solutions. It covers data mining, data preparation, feature engineering, model development, evaluation and maintenance before introducing neural networks and deep learning. Use cases and practical labs connect the concepts to applications such as computer vision, natural language processing and AI-assisted programming.

Learning Outcomes

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

- ✓ Explain the main AI, machine learning and deep learning concepts
- ✓ Prepare data and engineer features for machine learning tasks
- ✓ Develop and evaluate a basic machine learning model
- ✓ Describe the role of neural networks in modern AI applications
- ✓ Explain how models are deployed, monitored and maintained across their lifecycle

Course Structure/Modules

- Module 1: AI and Machine Learning Foundations
- Module 2: Data Mining and Data Preparation
- Module 3: Feature Engineering and Model Development
- Module 4: Model Evaluation and Improvement
- Module 5: Neural Networks and Deep Learning
- Module 6: Deployment, Monitoring and Applied Use Cases

Target Audience

- ✓ Aspiring AI practitioners
- ✓ Developers
- ✓ Data analysts
- ✓ Technical graduates
- ✓ Professionals who need a structured technical introduction to AI

Machine Learning Technology and Practice

Duration: 3 days | Level: Intermediate technical | Delivery mode: Virtual or in-person

Course Overview

This course combines the theoretical foundations of machine learning with practical implementation. Participants explore supervised and unsupervised learning, select suitable algorithms, prepare data, train and evaluate models, and improve their performance. Hands-on work also addresses reproducibility, experimentation and recognised engineering practices for applying machine learning to new problems.

Learning Outcomes

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

- ✓ Frame business or technical problems as machine learning tasks
- ✓ Prepare data and select appropriate features and algorithms
- ✓ Implement supervised and unsupervised learning techniques
- ✓ Evaluate, tune and compare models using suitable metrics
- ✓ Apply reproducible experimentation and responsible ML practices

Course Structure/Modules

- Module 1: Framing Machine Learning Problems
- Module 2: Data Preparation and Feature Engineering
- Module 3: Supervised Learning
- Module 4: Unsupervised Learning
- Module 5: Evaluation, Tuning and Error Analysis
- Module 6: Practical ML Workflow and Innovation Practices

Target Audience

- ✓ Data analysts
- ✓ Developers
- ✓ Engineers
- ✓ Data scientists
- ✓ Technical professionals with basic programming and statistical knowledge

Deep Learning Using Artificial Neural Networks

Duration: 3 days | Level: Intermediate technical | Delivery mode: Virtual or in-person

Course Overview

This course examines the mathematical, statistical and computational foundations of deep learning for high-dimensional data such as images and text. Participants study neural-network training, optimisation, representation learning and selected supervised and unsupervised architectures. Practical exercises emphasise convolutional networks, invariance, stable training and the evaluation of deep-learning models.

Learning Outcomes

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

- ✓ Explain the structure and learning process of artificial neural networks
- ✓ Implement and train deep neural networks for high-dimensional data
- ✓ Apply convolutional architectures to suitable problems
- ✓ Analyse optimisation, regularisation and stability challenges
- ✓ Evaluate supervised and unsupervised deep-learning approaches

Course Structure/Modules

- Module 1: Neural Network Foundations
- Module 2: Training, Backpropagation and Optimisation
- Module 3: Deep Architectures and Representation Learning
- Module 4: Convolutional Networks and Invariance
- Module 5: Unsupervised and Self-Supervised Learning
- Module 6: Model Evaluation and Practical Implementation

Target Audience

- ✓ Machine learning practitioners
- ✓ Data scientists
- ✓ Software engineers
- ✓ Researchers with Python
- ✓ Mathematics and basic machine learning knowledge

Python for Artificial Intelligence

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This intensive course explores the Python libraries, frameworks and development practices that underpin modern AI solutions. Participants work with data manipulation, numerical computing, visualisation and machine learning tools before building and evaluating applied AI workflows. The course stresses clean, reproducible code and selecting appropriate libraries for different AI tasks.

Learning Outcomes

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

- ✓ Build reproducible Python environments for AI development
- ✓ Manipulate, analyse and visualise data using core Python libraries
- ✓ Develop machine learning workflows using established frameworks
- ✓ Implement and evaluate neural-network or language-based applications
- ✓ Structure AI code for testing, reuse and deployment readiness

Course Structure/Modules

- Module 1: Python Environments and AI Development Workflow
- Module 2: NumPy, pandas and Data Preparation
- Module 3: Visualisation and Exploratory Analysis
- Module 4: Machine Learning with Scikit-Learn
- Module 5: Deep Learning and Modern AI Frameworks
- Module 6: Reproducibility, Testing and Applied Project

Target Audience

- ✓ Developers
- ✓ Data analysts
- ✓ Engineers
- ✓ Aspiring AI practitioners with prior Python programming experience

AI Prompt Engineering for Intelligent Dialogue

Duration: 1 day | Level: Basic technical | Delivery mode: Virtual or in-person

Course Overview

This course develops the knowledge and practical skills required to design effective prompts for advanced language models such as ChatGPT, Gemini and Copilot. Participants examine how language models interpret instructions, context and examples, then practise techniques for controlling format, tone, reasoning and quality. The course also covers testing, evaluation, common failure modes and safe use.

Learning Outcomes

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

- ✓ Explain how large language models respond to prompts and context
- ✓ Create clear prompts using roles, instructions, constraints and examples
- ✓ Apply zero-shot, few-shot and iterative prompting techniques
- ✓ Test and improve prompts using defined quality criteria
- ✓ Recognise hallucination, injection, privacy and bias risks in AI dialogue

Course Structure/Modules

- Module 1: How Language Models and Prompts Work
- Module 2: Prompt Structure and Instruction Design
- Module 3: Zero-Shot, Few-Shot and Iterative Techniques
- Module 4: Context, Output Control and Reusable Templates
- Module 5: Evaluation, Failure Modes and Safe Dialogue

Target Audience

- ✓ Developers
- ✓ Analysts
- ✓ Technical professionals
- ✓ Product teams
- ✓ Advanced users who want a systematic foundation in prompt engineering

Secure Generative AI

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This workshop equips technical teams to secure generative AI applications against emerging threats. Participants examine the OWASP Top 10 for LLM applications and conduct practical threat-modelling and adversarial exercises addressing prompt injection, sensitive-data disclosure and insecure output handling. The course covers guardrails, access controls, monitoring, testing and compliance by design.

Learning Outcomes

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

- ✓ Identify major security risks affecting generative AI applications
- ✓ Threat-model an LLM application and its data flows
- ✓ Test for prompt injection, data leakage and unsafe output handling
- ✓ Implement layered guardrails and secure design controls
- ✓ Develop monitoring, incident-response and compliance measures

Course Structure/Modules

- Module 1: Generative AI Threat Landscape
- Module 2: OWASP Risks and Threat Modelling
- Module 3: Prompt Injection and Adversarial Testing
- Module 4: Data Leakage and Secure Output Handling
- Module 5: Guardrails, Identity and Access Controls
- Module 6: Monitoring, Incident Response and Compliance

Target Audience

- ✓ AI engineers
- ✓ Application developers
- ✓ Cybersecurity professionals
- ✓ Risk teams
- ✓ Solution architects
- ✓ Security testers

Package 5: Enterprise AI Workforce

Large Language Models

Duration: 1 day | Level: Intermediate technical | Delivery mode: Virtual or in-person

Course Overview

This course provides an in-depth introduction to the technologies behind modern large language models. It traces the development of language processing from machine translation and earlier language models to transformer-based generative systems powering tools such as ChatGPT and Gemini. Participants explore model capabilities, limitations, application patterns, evaluation and responsible implementation.

Learning Outcomes

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

- ✓ Explain the evolution of natural language processing and language models
- ✓ Describe transformer architecture and the LLM development lifecycle
- ✓ Compare prompting, retrieval and fine-tuning as adaptation approaches
- ✓ Identify appropriate enterprise applications and integration patterns
- ✓ Assess hallucination, bias, security, privacy and governance risks

Course Structure/Modules

- Module 1: Evolution of Language Technologies
- Module 2: Transformers, Tokens and Model Training
- Module 3: Generative LLM Capabilities and Limitations
- Module 4: Prompting, RAG and Fine-Tuning
- Module 5: Applications, Evaluation and Responsible Deployment

Target Audience

- ✓ Developers
- ✓ Data scientists
- ✓ AI engineers
- ✓ Solution architects
- ✓ Technical decision-makers with foundational AI knowledge

Large Language Models Fine-Tuning

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This intensive workshop teaches participants to specialise open-source large language models using proprietary or domain-specific data. It covers dataset preparation, chat formatting, parameter-efficient fine-tuning using PEFT and QLoRA, training with the Hugging Face ecosystem and production preparation. Participants also evaluate whether fine-tuning is appropriate compared with prompting or retrieval-based approaches.

Learning Outcomes

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

- ✓ Determine when fine-tuning is preferable to prompting or RAG
- ✓ Prepare, clean and format domain-specific training datasets
- ✓ Apply PEFT and QLoRA to fine-tune an open-source LLM
- ✓ Evaluate model quality, safety, bias and overfitting
- ✓ Merge, package and prepare model weights for deployment

Course Structure/Modules

- Module 1: Fine-Tuning Strategy and Model Selection
- Module 2: Dataset Preparation and Chat Formatting
- Module 3: Hugging Face, TRL, PEFT and QLoRA
- Module 4: Training on Accessible Hardware
- Module 5: Evaluation, Safety and Iteration
- Module 6: Weight Merging and Production Preparation

Target Audience

- ✓ AI engineers
- ✓ Machine learning engineers
- ✓ Data scientists
- ✓ Developers experienced in Python, deep learning and LLM fundamentals

RAG Applications and Vector Databases

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This workshop guides participants through the design and implementation of Retrieval-Augmented Generation applications grounded in enterprise information. It covers document ingestion, chunking, embeddings, vector databases, semantic search, retrieval strategies, prompt assembly and evaluation. Participants learn to improve contextual relevance and reduce unsupported outputs while applying security and access controls.

Learning Outcomes

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

- ✓ Explain the architecture and value of Retrieval-Augmented Generation
- ✓ Prepare and embed enterprise documents for semantic retrieval
- ✓ Configure and query a vector database
- ✓ Design retrieval and generation pipelines that cite grounded sources
- ✓ Evaluate relevance, faithfulness, security and performance

Course Structure/Modules

- Module 1: RAG Architecture and Use Cases
- Module 2: Document Ingestion, Chunking and Metadata
- Module 3: Embeddings and Vector Databases
- Module 4: Retrieval Strategies and Prompt Assembly
- Module 5: Evaluation and Hallucination Reduction
- Module 6: Security, Access Control and Deployment

Target Audience

- ✓ AI engineers
- ✓ Developers
- ✓ Data scientists
- ✓ Solution architects with Python and LLM application experience

Developing Chatbot Applications

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This hands-on workshop develops operational proficiency in building conversational applications with LangChain. Participants learn to manage prompts, memory, tools and logical chains, then add Retrieval-Augmented Generation for querying documents and databases. The course culminates in a functional virtual assistant designed with evaluation, safety and deployment considerations.

Learning Outcomes

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

- ✓ Design the architecture of an LLM-powered conversational application
- ✓ Manage prompts, chains, memory and session context in LangChain
- ✓ Connect a chatbot to documents and databases using RAG
- ✓ Implement tools, guardrails and fallback behaviours
- ✓ Build and evaluate a functional virtual assistant

Course Structure/Modules

- Module 1: Chatbot Architecture and LangChain Foundations
- Module 2: Prompts, Chains and Structured Outputs
- Module 3: Memory and Conversation State
- Module 4: RAG for Documents and Databases
- Module 5: Tools, Guardrails and Evaluation
- Module 6: End-to-End Virtual Assistant Build

Target Audience

- ✓ AI application developers
- ✓ Software engineers
- ✓ Data scientists
- ✓ Technical product teams familiar with Python and LLM fundamentals

Building Agentic AI

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This intensive workshop advances participants from linear chatbot workflows to autonomous, stateful agentic systems. Using LangChain and LangGraph concepts, participants design agents that plan, select tools, execute actions, maintain state, recover from errors and collaborate with humans or other agents. The programme emphasises controlled autonomy, observability, evaluation and safe deployment.

Learning Outcomes

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

- ✓ Distinguish agents from chatbots and linear chains
- ✓ Design stateful agent workflows with decisions, loops and memory
- ✓ Implement planning, tool use and action execution
- ✓ Introduce human approval, error recovery and multi-agent collaboration
- ✓ Evaluate agent reliability, safety, cost and operational performance

Course Structure/Modules

- Module 1: From Chains to Agentic Systems
- Module 2: State, Memory and LangGraph Workflows
- Module 3: Planning, Tool Use and Action Execution
- Module 4: Reflection, Error Recovery and Human Oversight
- Module 5: Multi-Agent Patterns
- Module 6: Observability, Evaluation and Deployment

Target Audience

- ✓ AI engineers, advanced developers
- ✓ Solution architects
- ✓ Technical teams with experience in Python and LLM application development

Mastering GenAI APIs Optimisation and Performance

Duration: 2 days | Level: Advanced technical | Delivery mode: Virtual or in-person

Course Overview

This course focuses on integrating cloud-based and local generative AI model APIs into reliable, production-ready software. Participants work with authentication, request design, parameter tuning, token management, structured JSON outputs, performance measurement and resilience. The programme also introduces payload-optimisation approaches, including TOON where appropriate, to reduce cost and latency.

Learning Outcomes

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

- ✓ Integrate cloud and local generative AI APIs securely
- ✓ Manage model parameters, context windows and token budgets
- ✓ Generate and validate structured outputs for software workflows
- ✓ Optimise latency, throughput and operating cost
- ✓ Implement caching, retries, monitoring and production safeguards

Course Structure/Modules

- Module 1: GenAI API Architecture and Secure Integration
- Module 2: Model Parameters and Token Management
- Module 3: Structured Outputs and JSON Validation
- Module 4: Cost, Latency and Payload Optimisation
- Module 5: Reliability, Caching and Rate Limits
- Module 6: Monitoring and Production Readiness

Target Audience

- ✓ Software developers
- ✓ AI engineers
- ✓ Platform engineers
- ✓ Solution architects building production generative AI applications

Implementing AI On-Premises

Duration: 2 days | Level: Advanced deployment | Delivery mode: Virtual or in-person

Course Overview

This course provides a comprehensive view of the infrastructure and applications required to architect an on-premises AI pipeline. It covers the data lifecycle, high-performance storage and compute, distributed training, model serving and production MLOps. Participants compare commercial and open-source options while considering security, governance, scalability, resilience and total cost of ownership.

Learning Outcomes

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

- ✓ Define business, security and technical requirements for on-premises AI
- ✓ Design data-processing, storage and compute architecture
- ✓ Plan distributed model training and efficient inference
- ✓ Establish a production-grade MLOps lifecycle
- ✓ Evaluate commercial and open-source solutions using operational and cost criteria

Course Structure/Modules

- Module 1: On-Premises AI Strategy and Requirements
- Module 2: Data Pipelines and Governance
- Module 3: Compute, Accelerators and High-Performance Storage
- Module 4: Distributed Training and Model Serving
- Module 5: MLOps, Monitoring and Lifecycle Management
- Module 6: Security, Resilience and Solution Evaluation

Target Audience

- ✓ AI platform engineers
- ✓ Infrastructure architects
- ✓ Data engineers
- ✓ MLOps teams
- ✓ Cybersecurity specialists and technical decision-makers

Implementing AI with Amazon Web Services

Duration: 2 days | Level: Advanced deployment | Delivery mode: Virtual or in-person

Course Overview

This course provides a practical overview of AWS services used to build and operate AI applications. Participants examine data ingestion with SNS, SQS and Kinesis; storage and analytics with S3, Redshift and Lake Formation; and AI development with SageMaker, Bedrock and Amazon Q. Demonstrations and labs connect these services in a secure, scalable AI architecture.

Learning Outcomes

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

- ✓ Design an AWS architecture for an AI workload
- ✓ Select services for data ingestion, processing, storage and governance
- ✓ Build and manage machine learning workflows with SageMaker
- ✓ Develop generative AI solutions using Bedrock and Amazon Q
- ✓ Apply security, monitoring, cost and deployment best practices

Course Structure/Modules

- Module 1: AWS AI Architecture and Core Services
- Module 2: Ingestion with SNS, SQS and Kinesis
- Module 3: Storage, Analytics and Governance
- Module 4: Machine Learning with SageMaker
- Module 5: Generative AI with Bedrock and Amazon Q
- Module 6: Security, Monitoring, Cost and Hands-On Deployment

Target Audience

- ✓ Cloud architects
- ✓ AI and machine learning engineers
- ✓ Developer
- ✓ Data engineers
- ✓ Technical teams with foundational AWS knowledge

Implementing AI with Google Cloud Platform

Duration: 2 days | Level: Advanced deployment | Delivery mode: Virtual or in-person

Course Overview

This course provides a practical overview of Google Cloud services for building AI applications. It covers ingestion and processing with Pub/Sub, Dataflow, Dataproc and Cloud Data Fusion; storage and analytics with Cloud Storage, BigQuery and Bigtable; and AI development using Vertex AI, AutoML and BigQuery ML. Demonstrations and labs reinforce secure, scalable implementation.

Learning Outcomes

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

- ✓ Design a Google Cloud architecture for an AI workload
- ✓ Select services for data ingestion, processing and storage
- ✓ Develop analytics and machine learning workflows with BigQuery ML and Vertex AI
- ✓ Use managed and AutoML capabilities for appropriate use cases
- ✓ Apply security, monitoring, cost and deployment best practices

Course Structure/Modules

- Module 1: Google Cloud AI Architecture
- Module 2: Pub Sub, Dataflow, Dataproc and Data Fusion
- Module 3: Cloud Storage, BigQuery and Bigtable
- Module 4: BigQuery ML and AutoML
- Module 5: Vertex AI Development and MLOps
- Module 6: Security, Monitoring, Cost and Hands-On Deployment

Target Audience

- ✓ Cloud architects
- ✓ AI and machine learning engineers
- ✓ Developers
- ✓ Data engineers
- ✓ Technical teams with foundational Google Cloud knowledge

Implementing AI with Microsoft Azure

Duration: 2 days | Level: Advanced deployment | Delivery mode: Virtual or in-person

Course Overview

This course introduces the Microsoft Azure platform and the services needed to build and manage AI solutions. Participants work with the Azure Portal, CLI and SDKs; Azure Machine Learning and Azure AI services; Databricks; and data platforms including Azure SQL, Cosmos DB, Data Lake, Blob Storage and Synapse Analytics. Demonstrations and labs connect these capabilities into secure deployment workflows.

Learning Outcomes

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

- ✓ Navigate Azure management tools and design an AI solution architecture
- ✓ Select Azure services for data storage, processing and analytics
- ✓ Develop and manage machine learning workflows with Azure Machine Learning
- ✓ Integrate Azure AI services and Databricks into applied solutions
- ✓ Apply security, monitoring, governance and cost controls

Course Structure/Modules

- Module 1: Azure Platform, Portal, CLI and SDKs
- Module 2: Data Storage with SQL, Cosmos DB, Data Lake and Blob Storage
- Module 3: Data Engineering with Databricks and Synapse
- Module 4: Azure Machine Learning
- Module 5: Azure AI Services and Application Integration
- Module 6: Security, Governance, Monitoring and Hands-On Deployment

Target Audience

- ✓ Cloud architects
- ✓ AI and machine learning engineers
- ✓ Developers
- ✓ Data engineers
- ✓ Technical teams with foundational Azure knowledge

Enrolment and Registration

To enrol for the courses, please contact the Member Development Lead:

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