Training for GoB Officials

Project: Enhancing Digital Government and Economy (EDGE)

Curriculum for
Excellence in Service Delivery: Developing Leadership in the Public Service

Duration: 30 hours (5 days)
Venue: IT Business Incubator, CUET

Table of Contents

1. Course Context

The course " Excellence in Service Delivery: Developing Leadership in the Public Service" is designed to equip public sector leaders with the tools and knowledge necessary to deliver exceptional, citizen-centric services. By focusing on the intersection of technology and leadership, the program aims to cultivate a new generation of public servants capable of navigating the complexities of the digital age.

A cornerstone of the course is developing a strong foundation in information technology. This includes understanding the fundamentals of the internet, cybersecurity, and IT infrastructure. Such knowledge empowers leaders to make informed decisions and effectively collaborate with IT teams. Additionally, the program emphasizes the importance of project management, equipping leaders with the skills to plan, execute, and deliver public sector initiatives efficiently.

Data and analytics are integral to the course, as leaders must harness the power of information to drive decision-making and improve service delivery. Participants will explore data-driven decision-making processes, predictive analytics, and business intelligence tools. Every government employee uses e procurement, the Bangladesh National Digital Architecture, and e-signature so participants will have firsthand exposure to these vital tools and platforms. Furthermore, the course delves into emerging technologies such as artificial intelligence and Industry 4.0, enabling leaders to understand their potential impact on public services and develop strategies to leverage them effectively.

Ultimately, the course seeks to cultivate visionary leaders who can drive innovation, manage change, and foster a culture of excellence within the public sector. By combining technical expertise with strong leadership skills, graduates will be well-prepared to shape the future of public service delivery and create a more efficient, responsive, and citizen-centric government.

2. Target Groups

- Policy Makers
- Government Officials

3. Course Objectives

- To provide comprehensive knowledge of the fundamental principles and functioning of the Internet.
- To instill fundamental cyber security concepts for safeguarding digital assets.
- To provide knowledge on tools and techniques for efficient digital project management.
- To provide an overview of ITIL principles and processes for effective service management.
- To introduce data-driven decision making and predictive analytics fundamentals.
- Exploring the influence of Industry 4.0 on work, human-AI collaboration, and ethical considerations.
- Learn a variety of cross-functional digital tools and platforms.
- Exploring various leadership styles and change management strategies.
- Introducing BI with data warehousing, visualization and analysis

4. Course Learning Outcomes

- Understand the basic concepts of the Internet
- Adopt best practices for maintaining security awareness and reducing risks in digital space
- Project management skills for digital initiatives
- Hands-on experience in Data-driven decision-making
- Gain a foundational understanding of AI & Industry 4.0
- Leadership development for effective digital transformation
- Able to employ cross-functional technologies and tools

5. Course Modules

SLA –001: How Internet works
SLA –002: Cyber Security
SLA –003: Smart Project Management
SLA –004: Information Technology Infrastructure Library
SLA –005: Data-Driven Decision Making
SLA –006: AI & Industry 4.0
SLA –007: Leadership for Future

6. Assessment Criteria

Sl No.	Stage of Assessment	Duration	Recommended Method
1	Pre-Assessment	30 min	Quiz
2	Final Assessment	60 min	Module final

7. Course Details

Sl No	Name of Module	Learning Topics	Learning Outcomes	Supporting Materials
1.	How Internet Works	• Introduction to the Internet • Internet Architecture and Protocols • IP Addressing and DNS • Routing and Switching • Internet Services and Applications • Future of the Internet • Internet Services and Applications • Future of the Internet	• Understand the basic concepts of the Internet • Grasp the Internet is structured • Describe the role of IP addresses • Understand the principles of routing • Describe common Internet services • Discuss emerging trends and the future of Internet • Understand the Role of Internet Technologies in Web Development.	Handouts, PowerPoint presentation, Practice in Lab

2.	Cyber Security	• Introduction to Cyber Security • Secure Online Habits • Device Security • Data Security • Cloud Security • Security Awareness and Best Practices	• Gain basic cybersecurity knowledge • Practice secure online habits • Understand data and cloud security • Protect organizational assets from cyber threats • Adopt best practices for maintaining security awareness and reducing risks • Understand the regulatory environment and compliance requirements.	Handouts, PowerPoint presentation, Practice in Lab
3.	Smart Project Management	• Fundamentals of Project Management • Project Planning and Initiation • Project Life Cycle and Phases • Agile Project Management • Tools for Project Management	• Understand Project Management Fundamentals • Develop skills to initiate and plan projects effectively • Gain knowledge of different project phases and lifecycle management • Differentiate Predictive and Agile Approaches • Adopt the Best Techniques of Management • Understand risk management techniques in • project.	Handouts, PowerPoint presentation
4.	Information Technology Infrastructure Library	• Introduction to ITIL • Dimensions of Service Management • ITIL Processes • Collaboration with IT • Service Value System • The Service Value Chain	• Learn ITIL basics • IT service lifecycle • Understand ITIL's strategic • Gain proficiency in service strategy • Implement continual service improvement	Handouts, PowerPoint presentation
5.	Data-Driven Decision Making	• Introduction to Data-Driven Decision Making • Data Collection and Management • Data-Driven Decision-Making Process	• Understand principles of DDDM • Master data collection and management • Analyze data effectively • Apply DDDM processes in real-world	Handouts, PowerPoint presentation

		• Predictive Analytics	• Ensure compliance with data governance • Understand and apply ethical principles in data driven decision making.	
6.	AI & Industry 4.0	• Introduction of 4IR • Artificial Intelligence (AI) • Understanding Generative AI • Industry 4.0 and the Future of Work • Human-AI Collaboration • Ethical Considerations of Generative AI	• Introduction of artificial intelligence (AI), robotics, the Internet of Things (IoT), Web3, blockchain, quantum computing • Understand Generative AI basics • Prepare for Industry 4.0 impact • Consider AI ethics critically • Collaborate effectively with AI • Make informed AI decisions	Handouts, PowerPoint presentation with flowcharts
7.	Leadership for Future	• Leadership for Managing Challenges of Industry 4.0 • Design thinking for innovation • Creative problem solving • Change Management and • Collaborative Leadership • Strategic Leadership • Teambuilding for High Performance	• Understanding the role of digital transformation in business, leveraging tools for innovation • Design thinking principles for innovation and creative problem-solving • Learn techniques for generating innovative solutions and out-of-the-box thinking • Learn strategies for organizational change, fostering collaborative leadership • Developing long-term visions, strategic plans to achieve organizational goals • Developing leading teams and organization through crises and change ensuring resilience and adaptability.	Handouts, PowerPoint presentation

8. Recommended References

Sl No	Module	Writer	Book Name	Publisher
1	SLA –001	Preston Gralla, Michael Troller	How the Internet Works	O'Reilly Media
2	SLA –002	William Stallings	Network Security Essentials: Applications and Standards	Pearson Education
3	SLA –003	Harold Kerzner	Project Management: A Systems Approach to Planning, Scheduling, and Controlling	Wiley
4	SLA –004	AXELOS	ITIL® 4 Foundation	AXELOS
5	SLA –005	Foster Provost and Tom Fawcett	Data Science for Business: What You Need to Know about Data Mining and Data-Analytic Thinking	O'Reilly Media
6	SLA –006	Alasdair Gilchrist	Industry 4.0: The Industrial Internet of Things	Apress Berkeley
7	SLA –007	George Westerman, Didier Bonnet, and Andrew McAfee	Leading Digital: Turning Technology into Business Transformation	Harvard Business Review Press

Excellence in Service Delivery: Developing Leadership in the Public Service

How the Internet Works

Topic 1: Introduction to the Internet

Overview of the Internet
- Definition and history of the Internet
- Key components and infrastructure

How the Internet Functions
- Basic concepts of data transmission and connectivity
- Understanding clients, servers, and the client-server model

Internet Governance
- Overview of organizations managing the Internet (ICANN, IETF, etc.)

Topic 2: Internet Architecture and Protocols

Internet Architecture
- Network topologies and the role of ISPs
- Understanding the layered architecture of the Internet (OSI Model, TCP/IP Model)

Internet Protocols
- Overview of core protocols (TCP, IP, UDP)
- How protocols facilitate communication and data transfer

Topic 3: IP Addressing and DNS

IP Addressing
- Understanding IPv4 and IPv6 addresses
- Structure and assignment of IP addresses

Domain Name System (DNS)
- How DNS translates domain names to IP addresses
- DNS hierarchy and components (DNS servers, zones, records)

Subnetting and CIDR
- Basics of subnetting and Classless Inter-domain Routing (CIDR)
- Practical exercises in subnetting and IP allocation

Topic 4: Routing and Switching

Routing Basics
- Introduction to routing and routing tables
- Routing protocols (RIP, OSPF, BGP)

Switching Basics
- Understanding network switches and VLANs
- How switching differs from routing

Routing and Switching in Practice
- Hands-on exercises with routing and switching configurations
- Network design and troubleshooting

Topic 5: Internet Services and Applications

Common Internet Services
- Overview of web services (HTTP, HTTPS)
- Email protocols (SMTP, POP3, IMAP)
- File transfer protocols (FTP, SFTP)

Web Technologies
- Basics of web servers and browsers
- Introduction to web hosting and content delivery networks (CDNs)

Applications and Security
- How applications interact with the Internet
- Basic security considerations for Internet services

Topic 6: Future of the Internet

Emerging Technologies
- Overview of technologies shaping the future (5G, IoT, AI)
- Impact of these technologies on Internet architecture and services

Internet Trends
- Current trends and future predictions (Web3, decentralized networks, quantum networking)

Challenges and Opportunities
- Addressing challenges such as privacy, security, and scalability
- Opportunities for innovation and growth in Internet technologies

Topic 7: Internet Technologies and App development

Introduction to web development.
Core web technologies.
Client-Server Architecture.

Cyber Security

Topic 1: Introduction to Cyber Security

Overview of Cyber Security
- Definition and importance of cyber security
- Key concepts and terminology (threats, vulnerabilities, risk, etc.)

Types of Cyber Threats
- Malware, phishing, ransomware, social engineering, and other common threats

Cyber Security Frameworks and Standards
- Introduction to NIST, ISO/IEC 27001, and other relevant frameworks

Topic 2: Secure Online Habits

Safe Internet Practices
- Recognizing and avoiding phishing and social engineering attacks
- Best practices for secure browsing

Password Management
- Creating and managing strong passwords
- Use of password managers and two-factor authentication

Email Security
- Identifying and handling suspicious emails
- Safe email practices

Topic 3: Device Security

Securing Personal Devices
- Best practices for securing smartphones, laptops, and tablets
- Importance of software updates and patches

Antivirus and Anti-malware
- Role of antivirus software in protecting devices
- Installation, configuration, and maintenance of antivirus solutions

Mobile Device Management (MDM)
- Introduction to MDM solutions for securing enterprise mobile devices

Topic 4: Internet and web security protocols

Introduction to security protocols
Emerging web security protocols
Best practices and implementation challenges
Threats and mitigation strategies

Topic 5: Data Security

Data Protection Principles
- Importance of data confidentiality, integrity, and availability

- Data encryption techniques and practices

Data Backup and Recovery
- Strategies for effective data backup
- Developing and implementing data recovery plans

Data Loss Prevention (DLP)
- Introduction to DLP tools and techniques
- Best practices for preventing data breaches

Topic 6: Cloud Security

Understanding Cloud Security
- Overview of cloud computing and cloud service models (IaaS, PaaS, SaaS)
- Common cloud security challenges

Securing Cloud Services
- Best practices for securing cloud-based applications and data
- Role of encryption, access control, and monitoring in cloud security

Compliance and Cloud Security
- Understanding regulatory requirements and standards for cloud security

Topic 7: Security Awareness and Best Practices

Security Policies and Procedures
- Developing and enforcing organizational security policies
- Role of security awareness training in mitigating cyber threats

Incident Response and Management
- Steps for effective incident response
- Building an incident response team and plan

Continuous Improvement in Security
- Importance of ongoing security assessments and audits
- Staying updated with emerging threats and security technologies

Topic 8: Regulatory compliances

Introduction to Regulatory compliance in cyber security
Key cybersecurity regulations and standards.
Industry specific regulations.
Compliance requirements and best practices.

Smart Project Management

Topic 1: Fundamentals of Project Management

Introduction to Project Management
- Definition and importance of project management
- Roles and responsibilities of a project manager

Key Concepts and Terminology
- Project, program, portfolio
- Project constraints: scope, time, cost, quality, risk, and resources

Project Management Frameworks
- Overview of PMBOK, PRINCE2, and other methodologies

Topic 2: Project Planning and Initiation

Project Initiation
- Identifying project stakeholders and defining roles
- Developing a project charter

Project Planning
- Defining project scope and objectives
- Creating a Work Breakdown Structure (WBS)
- Resource planning and allocation

Topic 3: Project Lifecycle and Phases

Project Lifecycle Phases
- Initiation, Planning, Execution, Monitoring & Controlling, and Closing

Detailed Phase Activities
- Key activities and deliverables in each phase
- Integration management across project phases

Monitoring and Controlling
- Tracking project progress and performance
- Managing changes to project scope, schedule, and costs

Topic 4: Agile Project Management

Introduction to Agile Methodology
- Principles and Values of Agile (Manifesto for Agile Software Development)
- Differences between Agile and traditional project management

Agile Frameworks
- Overview of Scrum, Kanban, and Lean
- Roles and ceremonies in Scrum (Scrum Master, Product Owner, Sprint Planning, Daily Standups)

Agile Practices
- User stories, backlog management, sprints, and iterations
- Agile project tracking and reporting

Topic 5: Tools for Project Management

Project Management Software
- Overview of popular tools (Microsoft Project, Asana, Trello, Jira)
- Selecting the right tool for your project

Software Demonstrations
- Hands-on exercises with project management tools
- Setting up projects, task assignments, tracking progress, and reporting

Smart Tools and Technologies
- Leveraging AI and machine learning in project management
- Using data analytics for informed decision-making

Information Technology Infrastructure Library (ITIL)

Topic 1: Introduction to ITIL

Overview of ITIL
- Definition and history of ITIL
- Importance and benefits of ITIL in IT service management

ITIL Framework
- Key concepts and principles
- Structure of ITIL v4

Service Management Lifecycle
- Phases of the ITIL service lifecycle
- Introduction to key components: Service Strategy, Service Design, Service Transition, Service Operation, and Continual Service Improvement

Topic 2: Dimensions of Service Management

Overview of the Four Dimensions
- Organizations and People
- Information and Technology
- Partners and Suppliers
- Value Streams and Processes

Balancing the Four Dimensions
- Understanding how each dimension contributes to service management
- Case studies and examples of effective dimension management

Integrating the Dimensions
- Strategies for integrating the four dimensions into ITIL practices
- Identifying and addressing potential conflicts between dimensions

Topic 3: ITIL Processes

Core ITIL Processes
- Incident Management
- Problem Management
- Change Management
- Service Request Management
- Configuration Management

Supporting ITIL Processes
- Capacity and Performance Management
- Availability Management
- IT Asset Management
- Service Continuity Management

Process Implementation
- Best practices for implementing and optimizing ITIL processes
- Common challenges and solutions in process implementation

Topic 4: Collaboration with IT

Importance of Collaboration
- Benefits of collaboration between IT and other departments
- Role of collaboration in successful ITIL implementation

Techniques for Effective Collaboration
- Communication strategies and tools
- Building cross-functional teams and fostering a collaborative culture

Case Studies
- Examples of successful IT and business collaboration Lessons learned and best practices

Topic 5: Service Value System (SVS)

Introduction to SVS
- Definition and components of the Service Value System
- The role of SVS in ITIL v4

Components of SVS
- Guiding Principles
- Governance
- Service Value Chain
- Continual Improvement

Applying SVS
- Integrating SVS components into ITIL practices
- Case studies and examples of SVS in action

Topic 6: The Service Value Chain (SVC)

Introduction to the Service Value Chain
- The Service Value Chain
- The Service Value Chain Overview

Activities of the Service Value Chain
- Plan Activity
- Improve Activity
- Engage Activity
- Design and Transition Activity
- Obtain or Build Activity
- Deliver and Support Activity

Value Streams and Review
- Service Value Streams
- Key Takeaways
- Knowledge Check

Data-Driven Decision Making

Topic 1: Introduction to Data-Driven Decision Making

Overview of Data-Driven Decision Making
- Definition and importance in modern business
- Benefits and challenges of using data in decision making

Historical Context
- Evolution of data analytics in business
- Key milestones and technological advancements

Key Concepts
- Understanding data literacy and data culture
- Introduction to key terms (data, information, knowledge, wisdom)

Topic 2: Data Collection and Management

Data Collection Techniques
- Methods of data collection (surveys, experiments, observational studies)
- Best practices for accurate and reliable data collection

Data Management
- Organizing and storing data efficiently
- Data governance and quality management

Tools and Technologies
- Overview of data management tools (databases, data warehouses, data lakes)
- Hands-on exercises with popular data management systems (e.g., SQL, NoSQL databases)

Topic 3: Data-Driven Decision-Making Process

Steps in the Decision-Making Process
- Identifying the problem or opportunity
- Gathering relevant data and information
- Analyzing data to generate insights
- Making informed decisions based on data
- Implementing and monitoring the decision

Frameworks and Models
- Introduction to decision making frameworks (e.g., Decision Theory, Rational Decision-Making Model) Using data to support and validate decision making models

Case Studies
- Real-world examples of Data-Driven Decision Making in various industries
- Lessons learned and best practices

Topic 4: Predictive Analytics

Basics of Predictive Analytics
- Definition and importance of predictive analytics
- Differences between descriptive, predictive, and prescriptive analytics

Predictive Modeling Techniques
- Common techniques (regression analysis, classification, time series analysis)
- Introduction to machine learning algorithms for predictive analytics

Tools and Software
- Overview of predictive analytics tools (e.g., R, Python, SAS, SPSS)
- Hands-on exercises and projects using predictive analytics tools

Applications of Predictive Analytics
- Use cases in marketing, finance, healthcare, and other sectors
- Case studies demonstrating the impact of predictive analytics

Topic 5: Tools and Technologies for Data-Driven Decision Making

Data Analytics Software and Tools
- Overview of popular data analytics tools (Excel, R, python, etc.)
- Business intelligence tools (Tableau, Power BI, etc.)
- Selecting the right tool for your needs

Big Data Technologies
- Introduction to big data concepts
- Tools for big data analysis (Hadoop, Spark, etc.)
- Real-world applications of big data

Cloud-Based Data Solutions
- Benefits of cloud computing for data analytics
- Key cloud platforms (AWS, Azure, Google Cloud, etc.)
- Data storage and processing in the cloud

Topic 6: Ethical use of data in decision making

Introduction to Ethics in data-driven decision making
Data privacy and protection
Ethical use of AI and ML
Emerging trends and challenges in data ethics

AI & Industry 4.0

Topic 1: Introduction to the Fourth Industrial Revolution (4IR)

Understanding 4IR
- Definition and scope of the Fourth Industrial Revolution
- Key technologies driving 4IR
- Historical context: Comparing previous industrial evolutions

Impact of 4IR on Society and Economy
- How 4IR is reshaping industries
- Economic implications and new business models
- Societal changes and the future of work

Case Studies and Real-world Applications
- Examples of 4IR technologies in action
- Success stories and lessons learned
- Challenges and opportunities in different sectors

Topic 2: Artificial Intelligence (AI)

Introduction to AI
- Definition and history of AI
- Key AI technologies and applications

AI Techniques and Algorithms
- Machine learning, deep learning, and neural networks
- Natural language processing (NLP) and computer vision

AI Tools and Platforms
- Overview of popular AI tools and platforms (TensorFlow, PyTorch, etc.)
- Hands-on exercises with AI software

Topic 3: Understanding Generative AI

Basics of Generative AI
- Definition and types of generative AI (GANs, VAEs, etc.)
- How generative models work

Applications of Generative AI
- Use cases in various industries (art, music, healthcare, etc.)
- Real-world examples and case studies

Building Generative Models
- A Step-by-step guide to creating generative AI models
- Practical exercises and projects

Topic 4: Industry 4.0 and the Future of Work

Overview of Industry 4.0
- Definition and key components (IoT, big data, cyber-physical systems)
- Impact on manufacturing and production

Technological Advancements
- Role of AI, robotics, and automation in Industry 4.0
- Case studies of Industry 4.0 implementations

Future of Work
- How Industry 4.0 is transforming the workforce
- Skills needed for the future job market

Topic 5: Human-AI Collaboration

Concepts of Human-AI Collaboration
- Benefits and challenges of collaborating with AI
- Examples of successful Human-AI partnerships

Tools and Techniques
- Collaborative AI tools and platforms
- Strategies for effective Human-AI interaction

Practical Applications
- Case studies of Human-AI collaboration in different sectors
- Hands-on projects involving Human-AI interaction

Topic 6: Ethical Considerations of Generative AI

Ethical Issues in AI
- Bias, fairness, and accountability in AI systems
- Privacy and security concerns

Ethics in Generative AI
- Ethical implications of generative AI applications
- Responsible AI development and deployment

Frameworks and Guidelines
- Existing ethical frameworks and guidelines for AI
- Case studies of ethical dilemmas in AI

Leadership for the Future

Topic 1: Digital Business and Innovation Leadership

Understanding Digital Transformation
- Definition and importance of digital transformation in business
- Key drivers of digital change
- Case studies of successful digital business transformations

Leveraging Digital Tools for Innovation
- Overview of digital tools and technologies (AI, IoT, blockchain, etc.)
- Strategies for implementing digital tools in business processes
- Measuring the impact of digital innovation

Leadership in the Digital Age
- Skills and attributes of effective digital leaders
- Leading digital teams and fostering a culture of innovation

Topic 2: Design Thinking for Innovation

Principles of Design Thinking
- Introduction to design thinking methodology
- The five phases: Empathize, Define, Ideate, Prototype, Test

Applying Design Thinking in Business
- Identifying user needs and pain points
- Creating innovative solutions through iterative prototyping and testing

Tools and Techniques
- Use of design thinking tools (personas, journey maps, brainstorming techniques)
- Case studies of design thinking in action

Topic 3: Creative Problem Solving

Fundamentals of Creative Problem Solving
- Understanding the creative problem-solving process
- Techniques for generating innovative ideas (brainstorming, mind mapping, lateral thinking)

Implementing Creative Solutions
- Evaluating and selecting the best solutions
- Overcoming obstacles and resistance to new ideas

Case Studies and Real-world Applications
- Examples of creative problem-solving in various industries
- Group exercises and projects to practice creative thinking

Topic 4: Change Management and Collaborative Leadership

Understanding Change Management
- Theories and models of change management (Kotter's 8 Steps, ADKAR model, etc.)
- Phases of organizational change and their impact on employees

Strategies for Effective Change Management
- Planning and implementing change initiatives
- Communication and stakeholder engagement
- Measuring and sustaining change

Collaborative Leadership
- Building and leading higher forming teams
- Encouraging collaboration and shared decision-making
- Conflict resolution and maintaining team cohesion

Topic 5: Strategic Leadership

Foundations of Strategic Leadership
- Definition and characteristics of strategic leadership
- Differences between strategic management and operational management

Developing Strategic Vision
- Crafting a compelling vision and mission
- Aligning organizational goals with strategic objectives

Strategic Planning and Execution
- Creating and implementing strategic plans
- Monitoring progress and adapting strategies as needed

Leadership Skills for Strategic Success
- Decision-making and critical thinking skills
- Ethical considerations and corporate governance

Topic 6: Crisis leadership

Understating crisis leadership
Leading through uncertainty and change
Building and sustaining resilient teams