Terms of Reference

Conducting ICT skills and Administration Training for Government Officials

1. Background

The Information and Communication Technology Agency of Sri Lanka (ICTA) is the apex body in implementing the Government Information and Communication Technology (ICT) policies. ICTA is in the process of formulation and driving national level initiatives towards developing and empowering all sectors through the intervention of digital technologies. In this regard, ICT for Government sector has been considered as one of the key development area.

When it comes to improving the delivery of services for citizens and maintaining transparency within government processes, organizations may consider using ICTs.

e-Government program pursues major and sustainable improvements in GoSL's efficiency, transparency, effectiveness, and quality of services. For this purpose, it will reinforce and expand fundamental governance and public management reforms for the most part already identified by GoSL and the international development community. It will do so by re-engineering public sector work processes through strategic use of ICT and by implementing novel ICT-enabled administrative policies such as 1) client rather than organizational design of work, 2) government accountability for service level standards to its clients, 3) electronic sharing of data across agencies, 4) separation of service delivery (front-end) from transaction processing (back-end) functions, 5) always-on, user-friendly, distance-neutral information and service facilities to citizens and businesses and 6) transparency in government operations.

2. Objectives

There are two objectives.

1.) To train up to maximum of 75 government officers in ICT Skills Training - Stage I course and 25 government officers in ICT Skills Training - Stage II course from Prime Minister's Office.
2.) To train up to maximum of 10 government officers who are responsible for maintaining a multi-user computer system including a local area network (LAN) and 48 government officers who are responsible for maintaining ICT related equipment from Prime Minister's Office.
3.) To raise awareness on Digital Government and other related concepts among 30 senior government officers.

3. Scope of the Service

The scope of this assignment is to impart ICT skills to 100 government officers and empower another 10government officers with necessary technical skills they need in maintaining and managing multi user computer systems. Furthermore, to train up another 48 government officers with necessary technical skills they need in maintaining and managing ICT related equipment and to raise awareness on Digital Government and related concepts among 30 senior government officers.

3.1 Training providers are invited to develop, plan and deliver five training programs as described herein (Annex 1).

- Section I - ICT Skills Training - Stage I (75 participants)
- Section II - ICT Skills Training - Stage II (25 participants)
- Section III - System Administration Skills Training (10 participants)
- Section IV - ICT related equipment maintaining and services (48 participants)
- Section V - Workshop on Digital Government and related domains (30 participants)

3.2 Training program is required to be delivered within Colombo city limits.

3.3 ICTA will maximize the quality of training through a continuous mentoring and monitoring programme defined and supervised by ICTA.

3.4 Selection of the consultants will also be based on similar experience and qualifications of the resources/trainers and prior experience of the organization.

3.5 The modules are able to be delivered in all three languages, i.e. based on the language competencies of each batch (Sinhala, Tamil and English). Provision of training includes resources (project managers, trainers, instructors, administration, logistics and quality inspectors) stationery, training guides, refreshments, utilities, training premises, parking facilities, computer equipment, peripherals and accessories, training aids such as multimedia projectors and any other value additions the consultant may include.

3.6 Demonstrate ability to deliver training immediately upon award of the contract.

3.7 Proven ability to deliver training programs in all three languages (Sinhala, Tamil and English).

3.8 Availability of necessary infrastructure facilities including Air Conditioned Laboratory with uninterrupted power and Internet connectivity for PCs that the training provider plans to use for this assignment and multimedia projector for each classroom. Adequate facilities for participants to have their meals should be provided within the same premises where training is conducted.

3.9 Training provider to coordinate and confirm with each participant on their participation by phone call, provide guidance on venue and obtain their attendance. If participants are not confirming attendance inform ICTA Project Manager for alternate participant information.

3.10 Training provider should ensure that group activities, assignments, discussion, role plays, etc. are included into the training sessions to get the active participation of the trainees.

3.11 Collect feedback data from Participants and Lecturers at the end of each training session for each batch. A completion report also needs to be submitted at the end of the assignment according to the given format by ICTA.

4. Team Composition and Qualification Requirements for the Key Experts

4.1 Minimum Qualification of the key staff

	Minimum Academic Qualification	Experience
ICT Skills Training - Stage I and ICT Skills Training - Stage II		
Team leader	Degree from a recognized university	Minimum 2 years' experience in managing cooperates sector ICT Skills training
Trainers - ICT Skills Training - Stage I (2 nos)	ICT related Degree from a recognized University	Minimum 2 years' experience in ICT training and good knowledge in Open Office Applications Fluent in Sinhala and English
Trainer - ICT Skills Training - Stage II (1 nos)	ICT related Degree from a recognized University	Minimum 2 years' experience in Advance ICT training and good knowledge in Open Office Applications Fluent in Sinhala and English
Instructors - (6 nos)	Recognized certification on ICT Skills	Minimum 1-year experience in ICT training and good knowledge in Open Office Applications
System Administration Skills Training		
Trainer (1 nos)	Degree from a recognized University (IT/Networking or equivalent) and Industry Recognized Certification on ICT System Administration (A+, CCNA, Linux + etc.)	Minimum 3 years' experience in ICT technical training Fluent in Sinhala and English
Instructor (1 nos)	Recognized certification on ICT System Administration	Minimum 1-year experience in ICT technical training

ICT related equipment maintaining and services		
Trainer (1 nos)	Industry Recognized Certification on ICT related equipment maintaining and services	Minimum 2years' experience in ICT related equipment maintaining and services Fluent in Sinhala and English
Instructors (2 nos)	Recognized certification on ICT related equipment maintaining and services	Minimum 1-year experience in ICT related equipment maintaining and services
Workshop on Digital Government and related domains		
Workshop Moderator	Related professional qualification	5 years' experience in similar role. Adult training techniques, eGovernment/ ICT awareness related experience Fluent in Sinhala and English

Note: 1) Training providers shall maintain a trainee to instructor ratio of 10:1 for the ICT Skills trainee and participant to instructor ratio of 5: 1 for the System Administration Skills Training with one main trainer (lecturer) per class.

5. Final Outputs and Deliverables Schedule

	Task	Timeline	Deliverable
1`	Submission of inception Report and work plan. Finalized training material for Section I, II and III, Finalized training plan, including class schedules, resources, M&E systems.	Commencement Date + 2 weeks	Inception Report
2	Section IV – ICT related equipment maintaining Training and Completion report at end of the training with details of participants, lecturers and feedbacks from students and lecturers. Section V – Workshop on Digital Government and related domains and Completion report at end of the training with details of participants and feedbacks	Commencement Date + 4 weeks	Up to maximum of 48 participants trained and Submission of Training Completion report Up to maximum of 30 participants trained and Submission of Training Completion report

3	Section I – ICT Skills Training Stage I (75 government officers) Section II – ICT Skills Training Stage II (25 government officers) and Completion report at end of the training with details of participants, lecturers and feedbacks from students and lecturers. Section III– System Administration Skills Training (10 government officers) and Completion report at end of the training with details of participants, lecturers and feedbacks from students and lecturers.	Commencement Date + 8 weeks	Up to maximum of 75 participants trained in ICT Skills Training Stage I and 75 participants trained in ICT Skills Training Stage II and Submission of Training Completion report Up to maximum of 10 participants trained in System Administration Skills and Submission of Training Completion report

6. Client's Input and Counterpart Personnel

6.1 List of participants.

7. Composition of review committee and review procedure to monitor consultants work

7.1 Program Manager, Human Resource capacity building program and ICTA appointed review committee. All the deliverables should be delivered in a manner acceptable to ICTA.

Annex 1 - Course Content/ Modules/ Training Methodology

1. Section I - ICT Skills Training - Stage I

This program should enhance capacities on Basic ICT Skills of the holder and knowledge of the basic concepts of Information and Communication Technology (ICT) and is able to use a personal computer and common computer applications at a basic level of competence. This phase is aimed at training 75 government officers who are working in the Prime Ministers' office.

Objective

The overall objective of this programme is to training up to 75 government officers with basic ICT skills and knowledge to improve government officer's efficiency and effectiveness of use of ICT skills and knowledge whereby respective services in government organizations.

Training Methodology

Training should be delivered in following modules and should not be less than 40hrs (8hrs X 5days) per participant. Training is expected to be delivered preferably centers located in Colombo. Training providers are expected to develop content for 6 modules described herein including any other value additions training provider may propose. The participants to be given a training manual as a take home material and the manual content should be prepared in English Language.

Training to government officials should be provided at the training provider's facility using necessary infrastructure facilities. Trainees should be trained on Microsoft Windows as operating system and Microsoft Office applications when delivering modules listed below. However, the trainees should be informed of the availability and usability of Free and Open Source operating systems (Ubuntu) and Open source desktop applications (Libre /Open Office).

Module 1 – Concepts of Information and Communication Technology (ICT)

The participant is required to understand the make-up of a personal computer in terms of hardware and software and to understand some of the concepts of Information and Communication Technology (ICT) such as data storage and memory. The participant should also understand how information networks are used within computing and be aware of the uses of computer-based software applications in everyday life. The participant should appreciate health and safety issues as well as some environmental factors involved in using computers. The participant should also be aware of some of the important security and legal issues associated with using computers.

- General Concepts
- The use of IT in everyday life
- Health and Safety environment
- Security
- Contrast proprietary software and Open source software

Module 2 – Basic Knowledge of Computers

The participant should be able to adjust main settings, use the built-in help features and deal with a non-responding application. He or she should be able to operate effectively within the desktop environment and work with desktop icons and windows. The participant should be able to manage and organize files and directories/folders, and know how to duplicate, move and delete files and directories/folders, and compress and extract files. The participant should also understand what a computer virus is and be able to use virus-scanning software. The participant should demonstrate the ability to use simple editing tools and print management facilities available within the operating system.

- Understand basic computer hardware components and terminology
- Back up files
- Understand and manage the file structure of a computer
- Computer Viruses
- Print management

Module 3 – Proficiency in Using Productivity Software

An expectation of this module to training and enhance the skills and knowledge of participants with use of productivity software. After conduct this module participant should be able to understand and identify productivity software and its uses, create documents, reports, and how to data and information will present to the audience using multimedia presentation tools and software. And also editing text, copy and paste documents in desired places, name and rename files and replacing files with relevant formats in desired places, delete and recover files. Moreover, changing file formats, compressed files and print the documents.

- Understand and know how to use the following types of software programs:
    - Word processing (example: MS Word, Google Doc, Writer)
    - Presentation (example: PowerPoint, Impress)
    - Spreadsheet (example: Excel, Calc)
    - PDF reader (example: Acrobat Reader, Preview)
    - Compression software (example: WinZip, Stuffit, 7Zip)

- Create documents of various types and save in a desired location
- Retrieve an existing document from the saved location
- Select, copy, and paste text in a document or desired location
- Print a document
- Name, rename, copy and delete files

Module 3.1 – Word Processing

The participant should be able to accomplish everyday tasks associated with creating, formatting and finishing small sized word processing documents ready for distribution. He or she should also be able to duplicate and move text within and between documents. The participant should demonstrate competence in using some of the features associated with word processing applications such as creating standard tables, using pictures and images within a document, and using mail merge tools.

- How to use the Application
- Main operations
- Formatting, Objects, Tools
- Mail Merge, Prepare Outputs
- Use of Libre/Open office for carrying out above functions

Module 3.2 – Spreadsheet

The participant should understand and be able to accomplish tasks associated with developing, formatting, modifying and using a spreadsheet of limited scope ready for distribution. He or she should also be able to generate and apply standard mathematical and logical formulas using standard formulas and functions. The participant should demonstrate competence in creating and formatting graphs/charts.

- How to use the Application
- Cells, Worksheets
- Formatting
- Formulas and Functions
- Charts and Graphs
- Prepare outputs
- Use of Libre/Open office for carrying out above functions

Module 3.3 – Database

The participant should be able to create and modify tables, queries, forms and reports, and prepare outputs ready for distribution. The participant should be able to relate tables and to retrieve and manipulate information from a database by using query and sort tools available in the package.

- How to use the Application
- Tables, Queries
- Forms
- Reports
- Prepare outputs
- Use of Libre/Open office for carrying out above functions

Module 3.4 – Multimedia Presentation

The participant should be able to accomplish tasks such as creating, formatting, modifying and preparing presentations using different slide layouts for display and printed distribution. He or she should also be able to duplicate and move text, pictures, images and charts within the presentation and between presentations. The participant should demonstrate the ability to accomplish common operations with images, charts and drawn objects and to use various slide show effects.

- How to use the Application
- Developing a presentation
- Text and images
- Charts, Graphs and Drawn objects
- Audio, Video
- Slide transition, Animation and other Slideshow effects
- Prepare outputs
- Use of Libre/Open office for carrying out above functions

Module 4 – Information and Communication

This module requires the applicant to understand some of the concepts and terms associated with using the internet and electronic mail (email) and also an appreciation of some of the security considerations associated with using the Internet and email.

- Information Security Policy for PM office
- Internet & email security and usage
- Introduction to Lanka Government Network (LGN) and Lanka Government Cloud (LGC)

Internet Skills

- Set up an Internet connection and connect to the Internet
- Have a working knowledge of the World Wide Web and its functions, including basic site navigation, searching, and installing and upgrading a Web browser
- Use a browser effectively, including bookmarks, history, toolbar
- Use search engines and directories to find information on the Web
- Download files and images from a Web page
- Understand and effectively navigate the hyperlink structure of the Web
- Understand how keep your information safe while using the Internet

Electronic Communication Skills

- Email, using a common email program (example: MS Outlook, Gmail, Apple Mail)
- Compose, Send, Reply, Forward messages
- Add attachments to a message
- Retrieve attachments from an email message
- Copy, paste and print message content
- Organize email folders
- Mail Management
- Use Unicode to send Sinhala and Tamil emails

Module 5 - Social Media usage in Government Organization

Following this module participant need to better understand the impacts they can achieve through social media in order to help priorities targets and establish effective policies. They need to adapt to, learn from and preferably shape the ways in which social media transform public value creation. And also they need to know the purpose and returns of social media use by government institution are not as clear as they are for political leads. Here we are looking to leverage social media to improve the quality of government services and enable greater citizen engagement, elevate public services, reduce costs, and much more. We need to improve their skills with publicly available social media web application, mobile application and tools, such as Facebook, Twitter, Pinterest, WhatsApp, Viber, Skype and YouTube are providing governments, agencies, and citizens with robust options for meeting above objectives.

- Awareness on possible uses for the public sector
- Social Media Application - Facebook, Twitter, Pinterest, WhatsApp, Viber, Skype and YouTube
- Relatedness with the ‘Disclosure of Information Act.’

Module 6

This module should be delivered as a full day workshop and after successful completion applicants will demonstrate knowledge and competence in using personal computer as a tool in their day today work. Furthermore, they should aware about future trends in Information and Communication Technologies and Digital Economy.

Computer Tips/ Practical Computer Advices

- How to select your perfect computer (Processor, Hard disk, RAM, VGA Memory etc. types and capacities)
- How to install/uninstall software
- Computer security (Logical and Physical basics)
- How to protect your computer (Anti Viruses etc.)
- How to plug in basic components
- Good Practices (Dos and Don’ts)

Digital Economy

- What is digital economy
- Features in digital economy and best practices
- Digital economy with public sector
- How public organizations could be ready for digital economy
- Online transaction and uses
- Online transaction readiness criteria
- Online transactions in government office
- Current and future trends in Information and Communication Technologies

Digital Government

- What is eGovernment
- Why some eGovernment projects fail?
- Human aspects of eGovernance
- How can eGovernance achieve good governance principles?
- What are the best practices of other countries?

Certification

1. After successful completion of all the above modules and the exam participants to be given a training participatory certificate for ICT Certification course based on their attendance. Minimum attendance required to obtain a participatory certificate is 80%.

2. Section II - ICT Skills Training – Stage II

This program should enhance capacities on level of advance ICT Skills of the holder and knowledge of the basic and advanced concepts of Information and Communication Technology (ICT) and is able to use a personal computer and common computer applications at advanced level of competence. This phase is aimed at training 25 government officers who are working in the Prime Ministers' office.

Objective

The overall objective of this program is to training up to 25 government officers with advanced ICT skills and knowledge to improve government officer's efficiency and effectiveness of use of ICT skills and knowledge whereby respective services in government organizations. After completion of the course, delegates will have advanced office computer skills, as well as deeper insight on how to generate knowledge using computers.

Training Methodology

Training should be delivered in following modules and should not be less than 40hrs (8hrs X 5days) per participant. Training is expected to be delivered preferably centers located in Colombo city area. Training providers are expected to develop content for modules described herein including any other value additions training provider may propose. The participants to be given a training manual as a take home material and the manual content should be prepared in English Language.

Training to government officials should be provided at the training provider's facility using necessary infrastructure facilities. Trainees should be trained on Microsoft Windows as operating system and Microsoft Office applications when delivering modules listed below. However, the trainees should be informed of the availability and usability of Free and Open Source operating systems (Ubuntu) and Open source desktop applications (Libre /Open Office).

Module 1 – Concepts of Information and Communication Technology (ICT)

Trainees are expected to acquire the knowledge of make-up of a personal computer in terms of hardware and software and to understand some of the concepts of Information and Communication Technology (ICT) such as data storage and memory. The participant should also understand how information networks are used within computing and be aware of the uses of computer-based software applications in everyday life. The participant should appreciate health and safety issues as well as some environmental factors involved in using computers. The participant should also be aware of some of the important security and legal issues associated with using computers.

- General Concepts
- Health and Safety environment
- Security
- Contrast proprietary software and Open source software

Module 2 – Proficiency in Using Productivity Software

An expectation of this module to training and enhance the skills and knowledge of participants with use of productivity software in an advance level. After conduct this module participant should be able to understand and identify productivity software and its uses, create documents, reports, and how to data and information will present to the audience using multimedia presentation tools and software in an advance level.

- Advance skills of following types of software programs:
  - Word processing (example: MS Word, Google Doc, Writer)
  - Presentation (example: PowerPoint, Impress)
  - Spreadsheet (example: Excel, Calc)
  - Database (example: Access)
  - PDF reader (example: Acrobat Reader, Preview)
  - Effective mail management (example: Outlook, Gmail)
  - Time management with calendar and tasks (example: Outlook Calendar, Gmail events)

Module 2.1 – Word Processing

- Get to know Word Processing
- Create a basic document
- Edit a document
- Format text
- Format paragraphs
- Add AutoText
- Include tables
- Insert graphic objects, headers and footers
- Control page appearance
- Proof a document
- Manage lists
- Customize tables and charts
- Customize formatting with styles and themes
- Modify pictures
- Create customized graphic elements
- Benefit from the Review tab
- Track Changes
- Use Simple Markup and All Markup
- Add comments
- Create a Table of Contents (TOC)
- Create an index
- Generate a table of figures
- Insert content using quick parts
- Control text flow
- Use templates to automate document creation
- Automate mail merges
- Use data sources and set up the main document
- Edit the main document
- Setup labels and envelopes
- Print mail merge documents
- Use macros to automate tasks
- Use Word with other programs

- Collaborate on documents
- Manage document versions
- Add reference marks and notes
- Make long documents easier to use
- Secure a document

Module 2.2 – Spreadsheet

- Get to know Excel
- Create a basic worksheet
- Perform calculations
- Modify a worksheet
- Format a worksheet
- Setup a page
- Print workbook contents
- Manage large workbooks
- Calculate data with advanced formulas
- Organise worksheet and table data
- Present data using charts
- Analyse data using Pivot tables and Pivot charts
- Insert graphic objects
- Customise and enhance workbooks and the Excel environment
- Streamline workflow
- Collaborate with others
- Audit worksheets
- Analyse data
- Work with multiple workbooks
- Import and export data
- Use Excel with the web
- Structure workbooks with XML
- Use Excel tips & tricks more effectively
- Get more out of Pivot tables
- Manage data with Conditional Formatting
- Apply Data Validation
- Use advanced formulas and charting
- Sort data
- Apply filters to data
- Manage tables
- Work with functions and formulas
  - Specialised functions (IF Function, VLOOKUP)
- Maintain data with conditional formatting
- Use additional paste options
- Save worksheets as different file type
- Revision on named ranges
- Introduction to ARRAY functions, also known as CSE function.
- Format, combine, extract and manipulate text and dates using functions.
- Review of the IF statement, Nested IF: Nest using AND, OR
- Work with advanced Lookup and Reference Functions (MATCH, INDEX, OFFSET).
- Handle errors returned as a result of a formula.

Module 2.3 – Database

- Explore the Access environment
- Design a database
- Build a database
- Manage data in a table
- Query a database
- Design forms

- Generate reports
- Control data entry
- Join tables
- Create flexible queries
- Improve forms
- Customise reports
- Share data across applications
- Structure existing data
- Write advanced queries
- Simplify tasks with macros
- Make effective use of forms
- Make reports more effective
- Maintain an Access database

Module 2.4 – Multimedia Presentation

- Get started with PowerPoint
- Create a presentation
- Format text on slides
- Add a graphical object or online pictures and videos
- Modify objects
- Insert tables and charts in a presentation
- Produce a photo album
- Prepare to deliver a presentation
- Customise the PowerPoint environment
- Customise a design template
- Use outlines in PowerPoint
- Add diagrams and special effects
- Customise a slide show presentation
- Collaborate on a presentation
- Secure and distribute a presentation

Module 3 – Information and Communication

This module requires the applicant to understand some of the concepts and terms associated with using the internet and electronic mail (email) and also an appreciation of some of the security considerations associated with using the Internet and email

- Information Security Policy for PM office
- Internet & email security and usage
- Introduction to Lanka Government Network (LGN) and Lanka Government Cloud (LGC)

Module 3.1 – Effective email management

- Get started with Outlook 2013
- Understand effective email management
- Compose emails
  - Effective use of the *Subject* line
  - Request *Delivery* and *Read* receipts
  - Use the attachment reminder
- Discuss strategies for reviewing email
  - View messages by conversations
  - Use the reading pane
  - Mark messages
- Change Views

    - Arrange mail by date or sender
    - Add a column to a view
    - Sort and filter in a view
    - Save a current view
    - Change view settings
- Use folders
    - Create folders
    - Add a folder to the Favourite's list
    - Customise categories
    - Use flags and the to-do list
    - Use Search Folders
    - Create a Search Folder
    - Share folders
- Process mail with Quick Steps and Rules
    - Use built-in Quick Steps
    - Create and use custom Quick Steps
    - Understand the advantage of using Rules
    - Create a rule from scratch
    - Manage Rules
    - Use Automatic Replies

Module 3.2 – Time management with calendar and tasks

- Stay organised using Outlook calendar
    - Overview
    - Use the window reminder
- Create appointments and meetings
    - Create appointments, meetings and events
    - Create an appointment from an email message or contact
    - Use the different calendar views
    - Include files and content in appointments
    - Show time zones in an appointment
    - Invite others to meetings
    - Create recurring meetings
- Organise mail with Flags and Categories
    - Flag items for follow-up
    - Understand the To-do items and daily Tasks list
    - Apply and remove categories
    - Customise your own categories
    - Create and use quick steps
- Manage Tasks and To-do list items
    - View tasks and to-do lists
    - Create a to-do item from an email message
    - Create a task
    - Convert an email into a task
    - Create recurring tasks
    - Complete a task and send an update
- Set options for the Outlook Task list
    - Set calendar options
    - Set options for a task list

Module 4- Social Media usage in Government Organization

Following this module participant need to better understand the impacts they can achieve through social media in order to help priorities targets and establish effective policies. They need to adapt to, learn from and preferably shape the ways in which social media transform public value creation.

And also they need to know the purpose and returns of social media use by government institution are not as clear as they are for political leads. Here we are looking to leverage social media to improve the quality of government services and enable greater citizen engagement, elevate public services, reduce costs, and much more. We need to improve their skills with publicly available social media web application, mobile application and tools, such as Facebook, Twitter, Pinterest, WhatsApp, Viber, Skype and YouTube are providing governments, agencies, and citizens with robust options for meeting above objectives. Furthermore, they should aware about future trends in Information and Communication Technologies and Digital Economy.

- What is social media?
- Introduction to popular social media tools/platforms
- Why use social media?
- Awareness on possible uses for the public sector
- Relatedness with the 'Disclosure of Information Act.'
- Online reputation management
- How can social media increase collaboration?
- Instant messaging vs social media resources
- Social media applications covered on this course:
  - Facebook
  - Twitter
  - LinkedIn
  - Blogs
  - RSS Feeds
  - Wiki & YouTube

Digital Economy

- What is digital economy
- Features in digital economy and best practices
- Digital economy with public sector
- How public organizations could be ready for digital economy
- Online transaction and uses
- Online transaction readiness criteria
- Online transactions in government office
- Current and future trends in Information and Communication Technologies

Digital Government

- What is eGovernment
- Why some eGovernment projects fail?
- Human aspects of eGovernance
- How can eGovernance achieve good governance principles?
- What are the best practices of other countries?
- Why some top level organizational leaders/managers/bosses are reluctant to be 'e' leader/manager? What are the psychological aspects?
- CIOs
- What are expected from CIOs?
- How can change yourself to change the working environment for a better place to be?

3. Section III - System Administration Skills Training

Objective

The objective of this training program is to uplift the ICT technical competencies of government officers who are responsible for maintaining a multi-user computer system including a local area network (LAN) and other information systems implemented in their respective organizations.

Training Methodology

Training provider is expected to develop a training programme to cover the course contents specified below. Training should be delivered in following modules and should not be less than Fourty (40) hours (8hrs X 5days) per participant. Training provider is expected to complete four modules with theory and practical work with necessary tools giving preference for learning by doing as described below. Training provider is also encouraged to include any other value additions. The training manual developed should cover the training content described below and make this available to all individual participants as take home material in English language. Training to government officials should be provided at the training provider's facility with necessary infrastructure, including Internet connectivity (if necessary) for each personal computer. Trainers should be capable of delivering the course content in Sinhala, Tamil or English based on the language capabilities and preference of the trainees in each batch.

ICTA expects System Administration training to improve efficiency and effectiveness of using ICT applications and infrastructure whereby government employees would be able to maintain their own networks, computers hardware and software in their respective organizations. The training program is expected to train up to maximum of 10 government officers in Prime Ministers' office.

Module 1 – Hardware

The Hardware module requires the participant to know and recognise the basic physical set-up of personal computers and Servers as well as their functions:

PC HARDWARE	
Category	**Topics**
Introduction to Personal Computer	Basic Components, Types of Computers
Motherboards	Function, Types and differences
BIOS	Features, Upgrading
Microprocessors	Features, Types, Slots and Sockets
Memory	RAM, ROM and Cache

Buses	Structure and Bandwidth, Types of buses
System Resources	I/O Port Addresses, IRQs, DMAs, APIC, Managing
Interfaces	Parallel ATA, Serial ATA, FireWire, Infrared, Bluetooth, Memory Card, RAID Controller
Mass storage	Principles, Other Magnetic Medias
Video Display	Monitor, Graphics Adapter, Graphics Library
Printers	Types, Installing and Managing
Network Hardware	Basic components, Network equipment, Network storage(NAS), Wi-Fi, Types and Function, Connection Ports
Power Supply	Types and Functions, ESD, UPS
Installation of new hardware	Install and Replace Hardware
Diagnosing and Troubleshooting	Hardware Problems, *Giving Practical exercises*
Trends	Upcoming technologies and equipment
SERVER HARDWARE	
Category	**Topics**
Introduction to Servers	Basic Components, Types of Servers
Motherboards	Function, Types and differences
BIOS	Features, Upgrading
Microprocessors	Features, Types, Slots and Sockets
Memory	RAM, ROM and Cache
Buses	Structure and Bandwidth, Types of buses
System Resources	I/O Port Addresses, IRQs, DMAs, APIC, Managing
Interfaces	Parallel ATA, SCSI, Serial ATA, FireWire, Infrared, Bluetooth, Memory Card, RAID Controller
Mass storage	principles, Tapes, SAN
Network Hardware	Basic components, Network equipment, Network storage(NAS), Types and Function, Connection Ports
Power Supply	Types and Functions, ESD, UPS
Installation of new hardware	Install and Replace Hardware
Diagnosing and Troubleshooting	Hardware Problems, with *practical exercises*
Trends	Upcoming technologies and equipment

Module 2 – Operating System

This module requires the participant to be familiar with the procedure of installing and updating the most common operating systems and applications especially CentOS, the server operating system which is being used by the LGN. The participant should be able to repair software problems that may occur and to help and perform network management functions. Also, he/she should know and handle the system tools, which are included in most operating systems and diagnose any problems at a PC system or a Network system, in order to repair the software problems.

PC	
Category	**Topics**
Operating System Fundamentals	Basic function
Install Operating System	Installation process, Dual O/S (Windows/Linux)
Operating System Organization	Boot Process
Using, configure and upgrade the operating system	Operating system Interface, Configure the Environment, Configuration files, Upgrading,
Disk management	File Management, File Systems, Disk Cache
Disk maintenance	Optimize disk performance
Memory	Memory Management
Install new Hardware	Hardware Installation, Plug and Play
Install new Application Software	Software installation
External Communication	Internet connection, Network, Internet browser, Mail Software,
Checking performance and monitoring events	Performance, Events
Diagnosing and Troubleshooting	*With practical exercises*

SERVER	
Category	**Topics**
Operating System Fundamentals	Basic function
Install Operating System	Installation process, Windows/ CentOS
Operating System Organization	Boot Process
Using, configure and upgrade the operating system	Operating system Interface, Configure the Environment, Configuration files, Upgrading,
Disk management	File Management, File Systems, Disk Cache, RAID
Disk maintenance	Optimize disk performance
Memory	Memory Management
Install new Hardware	Hardware Installation, Plug and Play
Install new Application Software	Software installation
External Communication	Internet connection, Network, Internet browser, Mail Software,
Manage users and groups accounts	Add and remove users and groups, Set Properties,
Create and manage shared resources and account permissions	Create shared resources, Remove shared resources, Logical Network Drives, Manage account permissions
Manage Network Printers	Installing and managing printers,

Backups	Types of backups
Utilities	Administrative Tools, Disk administration utility, Network utilities,
Installing software	Install network operating system, Install and remove applications
Installation and Configuration	Installation and Configuration of a NIC, Network Protocol,
Sharing Internet Services	Installing Services
Checking performance and monitoring events	Performance, Events
Diagnosing and Troubleshooting	*With practical exercises*

Module 3 – Local Area Network and Network Services

This module requires the participant to be familiar with the procedure of installing, using and managing a local area network starting with the servers. He/ She should be able to add and remove users and shared resources. The participant should be able to repair the network problems.

Category	Topics
Network Fundamentals	OSI Model, Topologies, Types of Networks (LAN, MAN and WAN), Protocols
LAN standards	Ethernet, FDDI, Wi-Fi
Internet connections	Modem Communication, ISDN communication, DSL communication, Sharing Internet Connections, IP Addressing, Sub netting
Configuration and Upgrading	Configuration, Upgrading
Diagnosing and Troubleshooting	Diagnose and resolve problems
Network Components	Hubs, Switches, Routers
Network Management	Network Management tools and protocols

Module 4 – ICT Security

This module requires the participant to be familiar with the various ways of protecting data both in a single PC and in a LAN with internet connection. More specifically the participant should be able to protect the company data from loss, virus attack and hacking. Also he/she should be able to know and handle the most common utilities and programs designed for this purposes. Upon completion of this module he/she should aware about ICT Laws in Sri Lanka.

Category	Topics
Basic concepts	• Definition of Information • Information in an organizational context • Objectives of Information Security • Value of Cyber-crime trade • Information Security Management • Confidentiality, Integrity, Availability • Security Architecture (Operating Systems) • Identification, Authentication, Authorization and Accounting

Risk Management	• Importance of Risk Management in IS
	• Vulnerabilities, Threats, Threat Agents, Risk, Security Controls
	• Risk Management Methodologies and Standards
	  ○ Risk Identification – *in very brief*
	  ○ Risk Assessment – *in very brief*
	  ○ Risk Treatment – *in very brief*
	  ○ Risk Acceptance – *in very brief*

Threats and attacks	• Attack vectors
	
	• Attacker profiles and Motives
	• Hackers (white hat, black hat)
	• Crackers
	• Reverse Engineers
	
	• Threats to confidentiality:
	  ○ Unauthorized disclosure
	  ○ Unauthorized Access
	• Threats to Integrity
	  ○ Lack of validation
	  ○ Intentional and Unintentional modification of data
	• Threats to Availability
	  ○ Denial of Service Attacks
	  ○ Natural causes
	  ○ Unintentional and intentional manmade causes
	
	• Common Threat realization techniques:
	  ○ Malware
	  ○ Virus, Worms, Spyware, Bots, Trojans, Rootkits, Key loggers
	  ○ Social Engineering
	  ○ Phishing, Pharming, Phaxing, Masquerading

	○ Exploiting Design and implementation flaws *(in brief)* ○ Buffer overflow ○ Cross site scripting ○ Privilege escalation ○ Session hijacking ○ Man in the middle attacks ○ Replay attacks • Physical ○ Theft, destruction of assets ○ Insertion of interception devices (wiretaps, optical fiber taps, EM detectors) ○ Sniffers ○ Snooping
Administrative Controls	• IS Policies ○ Introduction ○ Business Continuity Management ○ Information Systems Acceptable use ○ Internet and E-mail security ○ Incident Management ○ Acquisition, development and maintenance of Hardware and software ○ Logical Access control ○ (Access Control Models: MAC, DAC,RBAC) ○ Single Sign On (SSO) Procedures, Standards, Guidelines, Plans, Schemes, Templates, Laws, Roles and Responsibilities, Segregation
Technical Controls	Firewalls (Network and host based), IDS/IPS (Network based, Host based), Access Control Lists, Proxy, VLAN, VPN, Cryptography (Encryption algorithms, Symmetric vs. Asymmetric, Public Key Infrastructure, Digital Signatures, Digital certificates, Hashing algorithms, message digests, integrity checking), OTP Tokens (two factor authentication), Password Management, Antivirus (issues: zero day attacks, signature update, selection criteria), Phishing filters
Physical Controls	Biometric detectors, CCTV, Siting and equipment protection, physical registers

Computer Security Incident Management	Incident Identification, Incident response process, Audit trails (log management), Lessons learned, Computer Emergency Response Team (CERT), capturing and storing malware samples.
Special Security Activities	Vulnerability Assessment and Penetration Testing and tools, Security assessment vs. security audit, Training and Awareness, Managed Security Services (Security Operations Centers), Honeypots, Malware analysis (behavioral analysis vs. static analysis)
Social, Ethical and Legal Aspects of Computer Security	Basic concepts, IPR, protecting personal information, Computer Crimes Act no. 24 of 2007, e-transactions act no. 19, Payment Devices Frauds Act

Module 5

This module requires the participant to be conversant in relation to the Lanka Government Network (LGN). Content should include the following:

- One-day Site visit to an Agreed LGN site
- Introduction to Lanka Government Network
- LGN Site study
- Group Discussion and a Report
- One-day Revision on completed modules, new techniques and trends

Certification

- Upon successful completion of each module from module 1 to module 4, participants should be assessed by the training provider.

- After successful completion of all five modules participants to be given a competency based certificate for the course followed.

4. Section IV - ICT related equipment maintaining and service

ICT related equipment maintaining and service course aims to enable participants (48) to diagnose and repair system level faults in computer based systems at foundation level. This course should equip participants with practical "Hands-on" skills relevant to the workplace and the theory required for certification. On successful completion of the course, participants should have the skills and knowledge to:

- Demonstrate a practical understanding of basic PC systems
- Install and commission a working stand-alone PC (Desktops and Laptops)
- Demonstrate a practical understanding of data storage devices
- Demonstrate a practical understanding of current printers, scanners, multifunctional copiers etc.

Course Module

- Components of a computer: – microprocessor, memory, video slot/card, sound card, I/O card, CD controllers, serial and parallel interfaces, expansion modules.
- Microprocessor: – Specifications, speed, data and address bus widths
- Memory: – RAM, ROM, cache, Hard Disk, CD and DVD ROM, USB. Maintenance, testing and cleaning drives.
- I/O: – Serial and parallel, RS232, RS423, Centronics, serial and parallel cables and connector testing for use in current PC systems
- Monitors and Displays: – Definitions, types, uses and applications.
- Assembling a PC
- Plug devices (UPS, Monitor, Mouse, Key Board, Printer, Scanner, Network Components such as switches, routers etc..) and power up
- Printers: – types, applications and specifications. Principles of operation of inkjet and laser printers, paper handling, printer cables and connections, maintenance.
- Scanners: – types, applications and specifications. Principles of operation, cables and connections, maintenance.
- Multifunctional Copiers: – types, applications and specifications. Principles of operation, paper handling, cables and connections, maintenance.
- Multimedia Projectors: – types, applications and specifications. Principles of operation, cables and connections, maintenance.

- Power supplies. Ratings: – Voltage, current and power requirements, DC and AC. The energy saving function, block diagram, typical faults, software setup and menu-driven adjustments.
- Electro-Static Discharge (ESD) and Safety Precautions.
- The WEEE directive, correct disposal of PC and printer waste.
- Installing and commissioning functioning systems.
- Fault Diagnosis: – PC boot-up sequence, Power On Self-Test (POST), virus checking and clearing, Software diagnostics and flowcharts. Component and module substitution and testing techniques.

5. Section V – Workshop on Digital Government and related concepts

The aim of this program to empower up to 30 senior government officers in eGovernment and Security. Program should be conducted as a workshop (when organizing this workshop selected consultancy firm should get Inputs from ICTA) and entire program should be 2 days. Training provider should select a suitable venue (ICTA suggesting as four-star hotel or above) with mentioned infrastructure facilities as described in below table.

Item	Description	No of Units
Venue	- Suitable Place within Colombo area (ICTA suggesting as four-star hotel or above place) - Seat arrangement should be in cluster type (Round Tables) - Sound and Projector	Item
Refreshments	-Welcome drinks -Morning and evening refreshments with 2 snacks and tea/coffee for each day	30 participants
Lunch	-Buffet lunch for 2 days	30 participants
Water	-Water bottles available throughout all days	As required
Stationery	- Note Books, Pens, Marker Pens A4, Flip Charts	As required

Module 1 – e-Government

- Overview of e-Government
- Types of e-Government Applications
- Trends and Future Directions for e-Government
- Practical experience of e-Government application

Module 2 – Information and Communication

- Introduction to Information Security
- Information Security Policy for PM office
- Internet & email security and usage
- Introduction to Lanka Government Network (LGN) and Lanka Government Cloud (LGC)

* Note 2 – The Resource persons will be provided by ICTA and workshop moderator should provide by the consultant.