Learning Events Design - LQMS

Basic Laboratory Quality Management System	Time Allotted and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	*Remarks*
Module 1 Introduction to LQMS	120 minutes Class room-based instructor	To provide the participants with a broad understanding of a laboratory quality management system.	Learners will gain knowledge in importance of LQMS	Power points white board and flip chart	Auditory and Visual	exercises	This module s conducted after pre test
Module 2 Facilities and Safety	270 minutes Class room-based instructor	To provide the participants with information that contributes to quality laboratory practices and a safe working environment.	•Relate how facility design impacts the efficiency and safety of laboratory workers • Relate how facility design impacts the efficiency and safety of laboratory workers • Describe practices to prevent or reduce risks • List personal protective equipment (PPE) that should be used routinely by laboratory workers • Explain general safety requirements for the laboratory • Describe steps to take in response to emergencies such as biological or chemical spills, or laboratory fires	Power points white board and flip chart	Auditory and Visual	exercises	
Module 3 Organization	120 minutes Class room-based instructor	To describe the organizational structure, management roles and responsibilities, and other factors needed for a successful laboratory quality management system.	To understand the organizational elements needed for a quality management system To List the management roles and responsibilities in a quality system To Explain the purpose of a quality manual	Power points white board and flip chart	Auditory and Visual		
Module 4 Personnel	45minutes Class room-based instructor	To provide principles of personnel management that contribute to a workforce that is qualified, competent, and understands and follows quality laboratory practices.	Be able to describe management's roles and responsibilities regarding personnel management. Explain how you can verify an employee competency. Identify potential sources of employee performance problems. Learn how to maintain personnel records. Able to list at least 10 Personnel records to be included in the laboratory personnel file.	Power points white board and flip chart	Auditory and Visual	exercises	
Module 5 (Documents and records)	45minutes Class room-based instructor	To provide the participants with information for managing documents and records.	Able to develop the qualty manual and SOPs and outlne the hierarchy of documents and their role at each level	Power points white board and flip chart	Auditory and Visual	exercises	

Module 6 Occurrence management	90 minutes Class room-based instructor	The purpose of this module is to provide the participants with both the rationale and the process for developing a program for monitoring and improving occurrence management.	Able to describe and perform root cause analysis for preventve and correctve acton	Power points white board and flip chart	Auditory, Visual Kinesthetic	exercises	
Module 7 Purchasing and Inventory	120 minutes Class room-based instructor	To provide an overview for making purchasing decisions and managing inventory.	Able to manage and continuously Monitor Implementation of Inventory Control Program	Power points white board and flip chart	Auditory and Visual	exercises	
Module 8 Equipment	120 minutes Class room-based instructor	To provide instruction on how to establish a program for managing equipment.	Able to perform verification of equipment and provide a rationale for developing a preventive maintenance programs in laboratory	Power points white board and flip chart	Auditory, Visual Kinesthetic	exercises	
Module 9 Process control - Sample handling	45 minutes Class room-based instructor	To present information that will help participants develop a system for managing samples from the time of collection to the final storage or disposal, in a manner that will ensure sample integrity.	Able to check and ensure sample integrity and assuring that all regulations and requirements are met when transporting samples.	Power points white board and flip chart	Auditory, Visual	exercises	
Module 10 Process control - Introduction	45 minutes Class room-based instructor	To describe the relationship between the quality control to the overall quality management system and describe the differences in quantitative, qualitative, and semi-quantitative examinations	Able to use the quality control in quantitative, qualitative, and semi-quantitative examinations for mprovement of the overall quality management system	Power points white board and flip chart	Auditory, Visual Kinesthetic	exercises	
Module 11 Process control - Qualitative	90 minutes Class room-based instructor	To provide information on how to conduct quality control for qualitative and semi-quantitative testing in the laboratory.	Able to use stock cultures for microbiology QC and use of quality control procedures for stains used in microscopic examination and methods for verifying performance of microbiological media.	Power points white board and flip chart	Auditory, Visual Kinesthetic	exercises	

Module 12 Process control - Quantitative	90 minutes Class room-based instructor	Explain how quality control methods are applied to quantitative laboratory examinations, and how to organize a quality control program for quantitative tests.	Able to differentiate accuracy and precision; select control material for a specified examination method; establish acceptable control limits for a method when only one level of control material is available; explain the use of a Levey-Jennings chart; give two examples of rule violations using Westgard Multi rule System; and describe how to correct "out of control" problems.	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises presented from group work for appropriateness	
Module 13 Assessment - Internal and External Audits	120 minutes Class room-based instructor	The purpose of this module is to provide the participants with an overview of laboratory assessment, and information about external and internal audits.	Able develop a process to prepare the laboratory for internal external audit; plan and manage an internal audit; discuss how to use results from a laboratory audit; ddvocate for the importance of taking corrective actions.	Power points white board and flip chart	Auditory and Visual		
Module 14 Assessment - Accreditation norms	90 minutes Class room-based instructor	To provide the participants with information on laboratory standards, the organizations that develop them, and how the processes of accreditation and certification are conducted.	Able to compare and contrast accreditation, certification and licensure; describe the process involved in the development of standards; Discuss the need for laboratory norms and standards.	Power points white board and flip chart	Auditory and Visual	exercises	
Module 15 Assessment - External Quality Assessment	90 minutes Class room-based instructor	To provide the participants with aspects of External Quality Assessment (EQA) that contribute to quality laboratory practices.	Able to understand EQA and the different types of EQA; descibe the benefits of EQA in the laboratory	Power points white board and flip chart	Auditory and Visual	exercises	

Module 16 Customer Service	90 minutes Class room-based instructor	The purpose of this module is to provide the participants with the rationale and the process for developing a program for monitoring and improving customer service.	Able to recognize the variety of laboratory customer groups; develop methods to measure customer satisfaction; discuss problems that may develop with customers; suggest solutions for customer service problems; discuss how quality management processes help the laboratory meet customer group needs and requirements.	Power points white board and flip chart	Auditory and Visual	exercises	
Module 17 Process Improvement	120 minutes Class room-based instructor	To provide an introduction to the concepts of process improvement and a description of some of the tools used to achieve process improvement.	Able to relate the historical perspective of process improvement; describe the importance of process improvement in maintaining quality; explain the need for tools to monitor laboratory processes so that problems can be identified and improved.	Power points white board and flip chart	Auditory and Visual	exercises	
Module 18 Information management	90 minutes Class room-based instructor	To provide the participants with an overview of information management and explain how it relates to quality practices in the laboratory.	Able to describe important elements of an information management system; explain things to consider when developing a manual, paper-based information system; describe the advantages and disadvantages of a computerized information management system.	Power points white board and flip chart	Auditory and Visual	exercises	

Learning Events Design - GeneXpert PT

GeneXpert Proficiency testing (DTS)	Time Allocated and Learning Environment	GeneXpert PT Training	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 11: ISO 17043 Requirements discussion	90mnutes Class room-based instructor	Understand the PT requrements needed for PT provder for laboratory quality	Learners will gain knowledge on basic requirements of ISO17043	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the experiences on PT by labs	This module s conducted after pre test The participants access to ISO17043 materals is mandatory
Module 1: Overview of Proficiency testing	90mnutes Class room-based instructor	Understand the concept of PT preparaton and testng for quality in laboratory	Learners will gain knowledge in importance of PT panel preparation	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted after ntroducton to ISO17043
Module 2: Biosafety in GeneXpert PT preparation	90 minutes Class room-based instructor	Understand the laboratory safety practces durng PT panel preparatons To demonstrate use of PPE respirator fit testing	Learners will relate how facility design impacts the efficiency and safety of PT panel preparatons • Learners will be able to use PPE and perform respirator fit testing	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises	partcpants pre readng of the materals s not mandatory
Module 3: Introduction to GeneXpert Proficiency testing (DTS)	90 minutes Class room-based instructor	To understand the principles in GeneXpert Proficiency testing (DTS)	Learners wll be able to apply the principles in GeneXpert Proficiency testing (DTS)	Power points white board and flip chart	Auditory and Visual	exercises	partcpants pre readng of the materals is not mandatory
Module 4: Work flow preparation of DTS Panel	45minutes Class room-based instructor and 330 minutes of practicals	To undestand the PT preparaton worflow to mnmze contamnaton to identfy DTS equipment to perform reverse Pipetting Practice To Isolate and select Freezer stock maintenance To prepare PBS, artificial sputum, glycerol, 7H9, McFarland 2.0	Be able to desgn the worflow for mnmzed contamnaton durng PT panel preparaton leraners wll be able to identfy DTS equipment and perform reverse Pipetting Able to Isolate and select Freezer stock maintenance and prepare PBS, artificial sputum, glycerol, 7H9, McFarland 2.0	Power points white board and flip chart, Pipettes	Auditory and Visual Kinesthetic	Facilitator will assess the reverse Pipetting exercises	Witnessing of each participants hands on exercises is mandatory
Module 5: Inactivation of DTS	45minutes Class room-based instructor and 150 minutes of practicals	To perform purity check, inactivation verification, stock preparation, pretest aliquots, stock storage of panels	Learners will be ble to perform purity check, inactivation verification, stock preparation, pretest aliquots, stock storage of panels	Power points white board and flip chart refrgerator centrfuge BSC	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 6: Program Scheduling and Enrollment	90 minutes Class room-based instructor and 45mins hands on practicals	To define the Key components in PT Program Enrollment and Enrollment of laboratories	Learners will be able to prepare the PT Program Enrollment and Enrollment of laboratories	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 7: Pretest and stock selection	45 minutes Class room-based instructor 510 mins hands on practicals	To understand Data Collection and Analysis using Excel Data and Cleaning To understand report compilation	Able to collect data and Analyse using Excel Data and compile PT panel Report	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 8: Panel aliquoting-	45minutes Class room-based instructor	To describe a system for aliquoting PT panels	Able to aliquote PT panels before sendng	pipettes	Auditory, Visual	Facilitator will assess the exercises presented from group work for appropriateness	partcpants pre readng of the materals is not mandatory
Module 9: Panel selection and validation	45 minutes Class room-based instructor and 150 mins hands on practicals	To select and validation	Able to perform panel selection and validation	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented from group work for appropriateness	Witnessing of each participants hands on exercises is mandatory

Module 10: Panel packaging, labeling and distribution	90 minutes Class room-based instructor and 240 mins hands on practicals	To understand the Panel packaging, labeling and distribution To Prepare shipping document	Able to prepare the panels package and label Panels wth relevant documents acompanied	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented from group work for appropriateness	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - MGIT Culture

MGIT Culture	Time Allocated and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 1: Introduction: Cause, Burden, Transmission and culture of TB	60minutes Class room-based instructor	Understand the Cause, Burden, Transmission and culture of TB	Learners will gain knowledge on Cause, Burden, Transmission and culture of TB globally	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted for participants with basic knowledge on Tuberculosis
Module 2: Algorithm for WHO Recommended Diagnostics (WRDs), (MIGT Culture)	45 minutes Class room-based instructor	Understand the unversal access to culture and DST using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture (MIGT Culture)	Learners will gain knowledge in importance of using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture for unversal access to culture and DST	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted based on GLI guidelines
Module 3: Concept of Biosafety in a TB Culture Laboratory	90 minutes Class room-based instructor	Understand the laboratory safety practces durng MGIT culture To demonstrate use of PPE respirator fit testing	Learners will relate how facility design impacts the efficiency and safety of MGIT culture • Learners will be able to use PPE and perform respirator fit testing	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises	partcpants pre readng of the materals s not mandatory
Module 4: sample reception and accessioning	45 minutes Class room-based instructor	To understand how to accept and accession samples to ensure confidentiality and traceability	Learners will be able to receive and accession samples	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the receiving and accessioning process	partcpants pre readng of the materals is not mandatory
Module 5: Preparation of sputum processing reagents	45minutes Class room-based instructor and 90 minutes of practicals	To understand the concentrations needed for decontamnation reagents	Learners will be able to prepare reagents to decontaminate samples	Power points white board and flip chart, Pipettes	Auditory and Visual Kinesthetic	Facilitator will assess the weghing scale exercises	Witnessing of each participants hands on exercises is mandatory
Module 6: Processing and Inoculation	45minutes Class room-based instructor and 135 minutes of practicals	To understand the principles in sample decontamnaton process and reverse pipette	Learners will be able to prepare reagents and decontaminate samples followed by reverse pipetting	Power points white board and flip chart refrgerator centrfuge BSC	Auditory, Visual Kinesthetic	Facilitator will assess the reverse Pipetting exercises	Witnessing of each participants hands on exercises is mandatory
Module 7: Use and maintenance of Essential laboratory equipment used in MIGT Culture	45 minutes Class room-based instructor and 150mins hands on practicals	To understand the Key essential equpment for MGIT culture To descrbe how to perform equpment maintenance	Learners will be able to perform equpment maintenance need in MGIT culture	Power points white board and flip chart MGIT equipment	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 8: Incubation to the BACTEC™ MGIT ™ 960 system	45 minutes Class room-based instructor 510 mins hands on practicals	To understand Data Collection and Analysis using Excel Data and Cleaning To understand report compilation	Able to collect data and Analyse using Excel Data and compile PT panel Report	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 9: BACTEC™ MGIT™ 960 system growth detection	45minutes Class room-based instructor	To describe the operaton of the BACTEC™ MGIT™ 960 system growth detection	Able to operate the BACTEC ™ MGIT™ 960 system growth detection	BACTEC™ MGIT™ 960 machine	Auditory, Visual	Facilitator will assess the ablty to use the BACTEC™ MGIT™ 960 machine	Witnessing of each participants hands on exercises is mandatory
Module 10: Preparation of Blood Agar	45 minutes Class room-based instructor and 90 mins hands on practicals	To Preparation of Blood Agar To understand importance of Blood Agar in MGIT culture	Able to prepare blood agar and perform sterility check	Power points white board and flip chart Biosafety hood	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 11: Formal Milk	45 minutes Class room-based instructor and 90 mins hands on practicals	To understand how to prepare formal milk	Able to prepare the formal milk	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory

Module 12: ZN reagents	46 minutes Class room-based instructor and 90 mins hands on practicals	To understand how to prepare ZN reagents	Able to prepare the ZN reagents and quality control them	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - MGIT DST

MGIT Culture and DST	Time Allocated and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 1: Biosafety in a DST laboratory	90minutes Class room-based instructor	Understand the Biosafety elemnets in a DST culture laboratory	Learners will be able to relate how facility design impacts the efficiency and safety of laboratory workers • Relate how facility design impacts the efficiency and safety of laboratory workers • Describe practices to prevent or reduce risks • List personal protective equipment (PPE) that should be used routinely by laboratory workers • Explain general safety requirements for the laboratory • Describe steps to take in response to emergencies such as biological or chemical spills, or laboratory fires	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted for participants with basic knowledge on Tuberculosis
Module 2: General epidemiology of Tuberculosis	90 minutes Class room-based instructor	Understand the incidence and prevalence of TB nationally and internationally	Learners will gain knowledge in importance of using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture for unversal access to culture and DST	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted based on GLI guidelines
Module 3: WHO recommendations for TB diagnosis and algorithms (T)	45 minutes Class room-based instructor	Understand the unversal access to culture and DST using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture (MIGT Culture DST)	Learners will gain knowledge in importance of using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture for unversal access to culture and DST	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises	partcpants pre readng of the materals s not mandatory
Module 4: Principles of Drug resistance	45 minutes Class room-based instructor	To understand Principles of Drug resistance	Learners will be able to apply the Principles of Drug resistance in MGIT DST	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the receiving and accessioning process	partcpants pre readng of the materals is not mandatory
Module 5: BACTEC MGIT 960 DST quality control	45minutes Class room-based instructor and 90 minutes of practicals	To understand the importance of QCs	Learners will be able to prepare and use BACTEC MGIT 960 DST quality control	Power points white board and flip chart, Pipettes	Auditory and Visual Kinesthetic	Facilitator will assess the weghing scale exercises	Witnessing of each participants hands on exercises is mandatory
Module 6: BACTEC ™ MGIT™ 960 culture positive, AFB smear, and identification	45minutes Class room-based instructor and 135 minutes of practicals	To understand the the process of BACTEC™ MGIT™ 960 culture positive, identification	Learners will be able to identify BACTEC™ MGIT™ 960 culture positive isolate using AFB smear, and Rapid Ag kit	Power points white board and flip chart refrgerator centrfuge BSC BACTEC™ MGIT™ 960	Auditory, Visual Kinesthetic	Facilitator will assess the preparation and reading of smears from MGIT positive culture	Witnessing of each participants hands on exercises is mandatory
Module 7: Inoculation and drug preparation for MGIT 960 DST system	45 minutes Class room-based instructor and 150mins hands on practicals	To understand the Key essential drugs and ther potency for DST To descrbe how to prepare and reconsttute drug followed by Inoculation of prepared drugs on MGIT 960 DST system	Learners will be able to prepare and reconsttute drugs and Inoculation of prepared drugs on MGIT 960 DST system	Power points white board and flip chart BACTEC™ MGIT™ 960 equipment Pipettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on pipetting tecniques and use of weghing scale	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - MGIT DST

Module 8: MGIT DST (reconstitution of BD lyophilized drugs and drugs from other manufacturers)	180 mins laboratory-based simulation and hands on practicals	To understand the process of MGIT DST reconstitution of BD lyophilized drugs and drugs from other manufacturers	Learners will be able to prepare and reconstitute of BD lyophilized drugs and drugs from other manufacturers for MGIT DST	BACTEC™ MGIT™ 960 equipment Pipettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 9: QC for prepared MGIT DST drugs	45minutes laboratory-based simulation and hands on practicals	To describe the qualty control measure on MGIT DST	Able to prepare qualtiy controls used during MGIT DST	BACTEC™ MGIT™ 960 machine pippettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 10: MGIT Culture Lab Equipment	45 minutes Class room-based instructor and 45 mins hands on practicals	To understand how to use and maintain the BACTEC™ MGIT™ 960 machine	Able to operate the BACTEC™ MGIT™ 960 machine and trouble shooting	Power points white board and flip chart Biosafety hood	Auditory, Visual Kinesthetic	Facilitator will assess the hands on BACTEC™ MGIT™ 960 machine operaton and handlng	Witnessing of each participants hands on exercises is mandatory
Module 11: Isolate requirements for MGIT DST	180 minutes Class room-based instructor	To dentfy the sutable Isolates needed for MGIT DST	Able to dentfy the solates sutable for DST and precuatons taen to ensure all solates are recovered on DST	Power points white board and flip chart BACTEC™ MGIT™ 960 machine pippettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 12: MGIT DST from liquid positive culture	360 hands on practicals	To understand how to perform MGIT DST from liquid positive culture	Able to perform MGIT DST from liquid positive culture	BACTEC™ MGIT™ 960 machine pippettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 14: Interpretation and reporting of MGIT DST results	496 hands on practicals	To understand how to Interprete and report MGIT DST results	Able to analyse and report MGIT DST culture results	BACTEC™ MGIT™ 960 machine pippettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory
Module 15: Trouble shooting MGIT DST	180 minutes Class room-based instructor and 270 mins hands on practicals	To understand trouble shootng aspects from sample preparaton drug consttuton equpment mantenance and results interpretation of MGIT DST results	Able to trouble shoot areas of pitfalls from sample preparation drug constitution equipment maintenance and results interpretation of MGIT DST results	BACTEC™ MGIT™ 960 machine pippettes	Auditory, Visual Kinesthetic	Facilitator will assess the hands on exercises	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - Benchmarking

Bench Marng on Laboratory management and program management	Time Allocated and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 1: Algorithm for WHO Recommended Diagnostics and NTRL algorithm	90mnutes Class room-based instructor	To understand the unversal access to culture and DST using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture (MIGT Culture)	Learners will gain knowledge in importance of using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture for unversal access to culture and DST	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the experiences on PT by labs	partcpants pre readng of the materals s not mandatory
Module 2 : Bench orientation and work flow of all technical assays	90mnutes Class room-based instructor	To understand the workflow and how it minimises errors in the laboratory	Learners will gain knowledge in minimising errors in the laboratory	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	partcpants pre readng of the materals s not mandatory
Module 3: Biosafety in a TB lab	90 minutes Class room-based instructor	Understand the laboratory safety practces durng MGIT culture To demonstrate use of PPE respirator fit testing	Learners will relate how facility design impacts the efficiency and safety of MGIT culture • Learners will be able to use PPE and perform respirator fit testing	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises	partcpants pre readng of the materals s not mandatory
Module 4: Laboratory management overview	90 minutes Class room-based instructor	To understand the coordination of activities to plan, direct, and control an organization with regard to quality	Learners wll be able to coordinate activities to plan, direct, and control an organization with regard to quality	Power points white board and flip chart	Auditory and Visual	exercises	participants management experience is needed for this module
Module 5: Action management system and monitoring actions	90minutes Class room-based instructor	To undestand the tools and importance of timely follow up actions in the lab	Learners will be ble to desgn and use tools for timely follow up actions in the lab	Power points white board and flip chart,	Auditory and Visual Kinesthetic	Facilitator will assess the exercises	participants management experience is needed for this module
Module 6: TB specimen referral system (TSRS)	180 minutes Class room-based instructor	Tounderstand the requrements for TSRS	Learners will be ble to establish or strengthen the TSRS in ther countries	Power points white board and flip chart	Auditory, Visual	Facilitator will assess the exercises	partcpants pre readng of the materals is not mandatory
Module 7: Laboratory quality management system	90 minutes Class room-based instructor	To understand the concept of quality in laboratory	Learners will be able to gain knowledge in importance of LQMS	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess exercises	partcpants pre readng of the materals is not mandatory
Module 8: Overview and rollout of GeneXpert	90minutes Class room-based instructor	To describe a system for rollng out GeneXpert	Able to develop and mplement GeneXpert roll out plan	Power points white board and flip chart	Auditory, Visual	Facilitator will assess exercises	partcpants pre readng of the materals is not mandatory
Module 9: Laboratory information management system	90 minutes Class room-based instructor	To understand the Laboratory information management system	Able to use the Laboratory information management system in managing results for patient care	Power points white board and TBLIS	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented from TBLIS	Witnessing of each participants hands on exercises is mandatory
Module 10: Laboratory data analysis (quality indicators, mdr profiles etc)	90 minutes Class room-based instructor	To understand how to use the Laboratory information management system to analyze data	Able to use the Laboratory information management system in analyzng data for trend analyss and montor lab performance	Power points white board and TBLIS	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented from TBLIS	Witnessing of each participants hands on exercises is mandatory
Module 11: Monitoring and evaluation principles	90 minutes Class room-based instructor	To understand the Monitoring and evaluation principles in a TB laboratory	Learners wll be able to use the Monitoring and evaluation principles management of the TB laboratory	Power points white board and TBLIS	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented from TBLIS	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - Benchmarking

Module 12: External Quality Assurance scheme overview	90 minutes Class room-based instructor	To understand the importance of an EQA program in improving the quality of laboratory test results To understand the methods to investigate an unacceptable test result from an EQA sample	Learners wll be able to use the EQA program in improving the quality of laboratory test results Learners wll be able to use the the methods to investigate an unacceptable test result from an EQA sample	Power points white board and flip chart	Auditory, Visual	Facilitator will assess exercises	partcpants pre readng of the materals is not mandatory
Module 13: Overview of the PT scheme	90 minutes Class room-based instructor	Understand the concept of PT preparaton and testng for quality in laboratory	Learners will gain knowledge in importance of PT panel preparation	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	This module is conducted after ntroducton to ISO17043

Learning Events Design - Benchmarking

Bench Marng on Laboratory management and program management	Time Allocated and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 1: EQA Overview	45 minutes theory Class room-based instructor	To understand the what External Quality Assessment is, benefits of EQA, types of EQA and benefits of EQA	Learners will gain knowledge and underastand the entire EQA system and its benefits.	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the participant interactions.	participants pre readng of the materals is not mandatory
Module 2 : Background and principles of rechecking	90mnutes Class room-based instructor	To provide participants with an understanding of the principles of rechecking	Learners will gain knowledge in concepts of blinded rechecking and how it is done	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	participants need to be very attentive and alert as this is the core
Module 3: Sampling and Rechecking Procedures.Sample size determination and sampling exercise	180 minutes Class room-based instructor	To provide participants with an understanding of the principles of rechecking and sample size determination	Learners will understand how sampling and rechecking is done	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 4: Identification and Management of Discordants	45 minutes Class room-based instructor	To provide participants with an understanding of identification and management of discordant slides, including validation of the results and identification and allocation of errors	Learners wll be able to gain knowledge in management of discordants	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	participants pre readng of the materals is not mandatory
Module 4 exercise: Identification and Management of Discordants	45 minutes Class room-based instructor	To provide participants with an understanding of identification and management of discordant slides, including validation of the results and identification and allocation of errors	Learners will be able to practice how to identify discordant, manage them and prevent re-occurance of errors.	note books, eqa sampling form, flip chart and white board	Disscussion and visual	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 5: Data Compilation, Analysis and Reporting of AFB Lab performance: Manual (presentation and exercise)	90minutes Class room-based instructor	To provide participants with an understanding of reporting and analysis of AFB-laboratories performance on paper	Learners will be able gain knowledge in reporting and analysis of AFB lab performance	Power points white board, flip chart ,note books,	Auditory, visual and discussion	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 6: Data Compilation, Analysis and Reporting of AFB Lab performance-computerized: T	90 minutes Class room-based instructor	To provide participants with an understanding of reporting and analysis of AFB-laboratories performance, using an already prepared computer workbook (EXCEL)	Learners will be able gain knowledge in reporting and analysis of AFB lab performance	Power points white board, flip chart ,note books, computers	Auditory, visual and discussion	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 7: : Interpretation of Rechecking results and feedback T	90 minutes Class room-based instructor	To provide participants with an understanding of analysis of AFB-laboratories performance, interpretation of results and feedback	Learners will be able to gain knowledge in interpretation of EQA results and how to provide feedback	Power points white board, flip chart, note books and computers	Auditory, visual and discussion	Facilitator will assess exercises	participants should be allowed to practice preparation of feedback reports
Module 8: Overview of Onsite Supervision- How, who and When (presenation and exercises)	90 minutes Class room-based instructor	To provide participants with general understanding of on-site supervision practices	learners will gain knowledge on how to carry out on-site support supervision	Power points white board and flip chart	Auditory, Visual	Facilitator will assess exercises	partcpants pre readng of the materals is not mandatory
Module 9: Onsite supervision attitude and communication	45 minutes Class room-based instructor	To emphasis the importance of the positive attitude and effective communication during the on-site supervision	learners will be able to understand how attitude and communication affects on-site supervision	Power points white board	Auditory, Visual	Facilitator will assess the presentation made	participants and trainers should have interactive disscussion

Learning Events Design - Benchmarking

Module 10: Conducting Problem Oriented(Targeted Supervisions) and Problem Solving: presentataion and exercise	90 minutes Class room-based instructor	To familiarize participants with the concept of the problem-oriented supervision and emphasize an important role of problem-oriented supervision for effective EQA programs	learners will gain knowledge on how to conduct targeted support supervision	Power points white board and flip chart	Auditory, Visual	Facilitator will assess the exercises presented	Witnessing of each participants hands on exercises is mandatory
Module 11: Basic of planning implementation/ Improvement Plan of a National EQA Network system with clear indicators and timelines	90 minutes Class room-based instructor	To give an overview of principles for planning and organizing EQA scheme. • To provide participants with the resource checklist needed for the implementation of EQA	learners will gain knowledge on how to plan and organise the EQA scheme and all the resources needed	Power points white board, flip chart, note books	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented	Witnessing of each participants hands on exercises is mandatory

Learning Events Design - Benchmarking

Bench Marng on Laboratory management and program management	Time Allocated and Learning Environment	Description of purpose	Learning outcomes: At the end of this course	Instructional materials used	Learning Method used	Assessment and evaluation criteria	Remarks
Module 1: Biosafety in Xpert MTB RIF Assay Laboratory-	90 minutes theory Class room-based instructor	To provide participants with the importance of safety practices in the GeneXpert MTB/RIF Ultra testing laboratory.	Learners will gain knowledge and underastand the importance of safety practices GeneXpert MTB/RIF Ultra testing.	Handouts, Slides,Over head projector,Flip chart,Markers,pens, Note books,PPEs	Auditory and Visual	exercises	demostration of use of PPE and mask fit testing is key
Module 2 :Tuberculosis Epidemiology	45 minutes Class room-based instructor	To provide participant with undestanding of the cause, transmission and the epidemiology of Tuberculosis.	Learners will gain knowledge in concepts of epidemiology of Tuberculosis.	Handouts, Slides,Over head projector,Flip chart,Markers,pens, Note books,PPEs	Auditory and Visual	Facilitator will assess participation rate of learners	participants need to be very attentive and alert.
Module 3: Algorithm for WHO Recommended Diagnostics and NTRL algorithm	45 minutes Class room-based instructor	To understand the unversal access to culture and DST using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture (MIGT Culture)	Learners will gain knowledge in importance of using the Algorithm for WHO Recommended Diagnostics (WRDs), and culture for unversal access to culture and DST	Power points white board and flip chart	Auditory, Visual Kinesthetic	Facilitator will assess the experiences	partcipants pre readng of the materals is not mandatory
Module 4: Basics of Polymerase Chain Reaction	45 minutes Class room-based instructor	To know the biological process that leads to DNA replication in nature, how this natural process is used in PCR and how PCR was improved by Real-time PCR methods	Learners wll be able to gain knowledge in management of discordants	Power points white board and flip chart	Auditory and Visual	Facilitator will assess the exercises	participants pre readng of the materals is not mandatory
Module 4 exercise:	45 minutes Class room-based instructor	To provide participants with an understanding of identification and management of discordant slides, including validation of the results and identification and allocation of errors	Learners will be able to practice how to identify discordant, manage them and prevent re-occurance of errors.	note books, eqa sampling form, flip chart and white board	Disscussion and visual	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 5:	90minutes Class room-based instructor	To provide participants with an understanding of reporting and analysis of AFB-laboratories performance on paper	Learners will be able gain knowledge in reporting and analysis of AFB lab performance	Power points white board, flip chart ,note books,	Auditory, visual and discussion	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 6:	90 minutes Class room-based instructor	To provide participants with an understanding of reporting and analysis of AFB-laboratories performance, using an already prepared computer workbook (EXCEL)	Learners will be able gain knowledge in reporting and analysis of AFB lab performance	Power points white board, flip chart ,note books, computers	Auditory, visual and discussion	Facilitator will assess the exercises	Exercises should be given a lot of attention so that the concept is well understood
Module 7: :	90 minutes Class room-based instructor	To provide participants with an understanding of analysis of AFB-laboratories performance, interpretation of results and feedback	Learners will be able to gain knowledge in interpretation of EQA results and how to provide feedback	Power points white board, flip chart, note books and computers	Auditory, visual and discussion	Facilitator will assess exercises	participants should be allowed to practice preparation of feedback reports
Module 8:	90 minutes Class room-based instructor	To provide participants with general understanding of on-site supervision practices	learners will gain knowledge on how to carry out on-site support supervision	Power points white board and flip chart	Auditory, Visual	Facilitator will assess exercises	partcpants pre readng of the materals is not mandatory
Module 9:	45 minutes Class room-based instructor	To emphasis the importance of the positive attitude and effective communication during the on-site supervision	learners will be able to understand how attitude and communication affects on-site supervision	Power points white board	Auditory, Visual	Facilitator will assess the presentation made	participants and trainers should have interactive disscussion

Learning Events Design - Benchmarking

Module 10:	90 minutes Class room-based instructor	To familiarize participants with the concept of the problem-oriented supervision and emphasize an important role of problem-oriented supervision for effective EQA programs	learners will gain knowledge on how to conduct targeted support supervision	Power points white board and flip chart	Auditory, Visual	Facilitator will assess the exercises presented	Witnessing of each participants hands on exercises is mandatory
Module 11:	90 minutes Class room-based instructor	To give an overview of principles for planning and organizing EQA scheme. • To provide participants with the resource checklist needed for the implementation of EQA	learners will gain knowledge on how to plan and organise the EQA scheme and all the resources needed	Power points white board, flip chart, note books	Auditory, Visual Kinesthetic	Facilitator will assess the exercises presented	Witnessing of each participants hands on exercises is mandatory