



BUREAU OF STANDARDS



QUALITY CONTROLS AND LABORATORY  
SYSTEM DOCUMENTATION

Place: Dar es Salaam

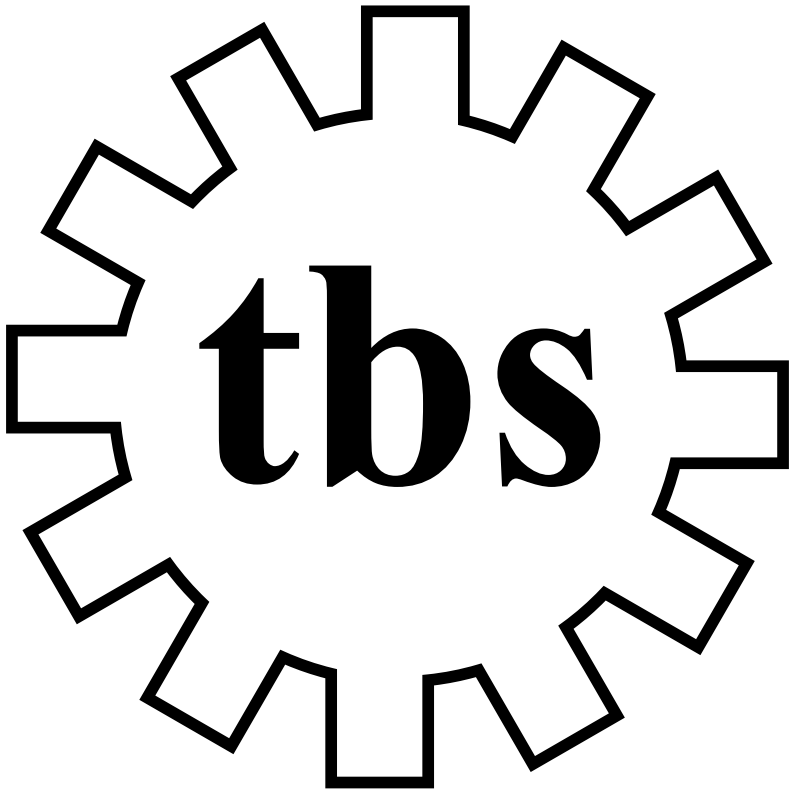
Venue: TBS HQ

Date: 29<sup>th</sup> March to 1<sup>st</sup> April 2022

# TRAINING CATALOGUE

## 2024

**TBS QUALITY MARK**



**“USE TBS CERTIFIED PRODUCTS”**

## **THERE IS ONLY ONE PLACE TO GO**

For standards, Quality Assurance and Standards Related Information

## **TBS of COURSE**



We also offer Testing Facilities, Metrology Services, Training programmes on standardization and Public education.

So, if you need any information on standards and quality assurance from anywhere in the world, look no further.

# Table of Contents

<b>INTRODUCTION .....</b>	<b>1</b>
<b>A: TRAINING COURSES.....</b>	<b>1</b>
1.0 Awareness on Quality Management System (QMS) – ISO 9001.....	1
2.0 Requirements and Implementation of ISO 9001.....	2
3.0 Quality Management System (ISO 9001) - Internal Auditor.....	2
4.0 Awareness on Environmental Management System (ISO 14001.....	3
5.0 Requirements and Implementation of ISO 14001.....	4
6.0 Environmental Management System (ISO 14001) - Internal Auditor.....	4
7.0 Awareness on Food Safety Management System (ISO 22000.....	5
8.0 Requirements and Implementation of ISO 22000.....	6
9.0 Food Safety Management System (ISO 22000) – Internal Auditor.....	6
10.0 Good Manufacturing and Hygiene Practices (GMP & GHP) for Food Industry.....	7
11.0 Hazard Analysis and Critical Control Points (HACCP).....	8
12.0 Manufacturing Quality System.....	9
13.0 Quality Packaging.....	10
14.0 Good Laboratory Practices (GLP).....	10
15.0 Laboratory Equipment Management.....	11
16.0 Laboratory Quality Control.....	12
17.0 Laboratory Quality System Documentation.....	12
18.0 Awareness on ISO/IEC 17025.....	13
19.0 Requirements and Implementation of ISO/IEC 17025.....	14
20.0 ISO/IEC 17025 - Internal Auditors.....	14
21.0 Awareness on ISO 15189.....	15
22.0 Requirements and Implementation of ISO 15189.....	16
23.0 ISO 15189 - Internal Auditors.....	17

24.0 Laboratory Metrological Traceability.....	17
25.0 Laboratory Risks and Opportunities.....	18
26.0 Method Validation and Verification for Testing Laboratories.....	19
27.0 Method Validation and Verification for Microbiology Laboratories.....	20
28.0 Uncertainty of Measurements for Testing Laboratories.....	21
29.0 Uncertainty of Measurements for Microbiology Laboratories.....	22
30.0 Conformity Statement and Decision Rule.....	22
31.0 Root Cause Analysis in Laboratory.....	23
32.0 Inter-Laboratory Comparison (ILC).....	24
<b>B: LABORATORY ATTACHMENT COURSES.....</b>	<b>24</b>
<b>C: TAILORED COURSES.....</b>	<b>25</b>
<b>D: GENERAL REQUIREMENTS OF TRAINING.....</b>	<b>25</b>
1.0 Mode of application.....	25
2.0 Mode of payment.....	26
3.0 Course presentation and methodology.....	26
4.0 Course assessment and awards.....	26
5.0 Postponement and cancellation of training.....	26
6.0 Training venue.....	26



# INTRODUCTION

Tanzania Bureau of Standards (TBS) is a parastatal organization established under the Ministry of Industry and Trade by an Act of Parliament, The Standards Act Cap.130, which gives the Bureau powers in carrying out its mandate to undertake measures for safety and quality control of commodities, services and environment of all descriptions and to promote standardization in industry and trade.

Tanzania Bureau of Standards, through the Research and Training Section, is engaged in imparting useful knowledge in the area of standardization, safety and quality assurance, testing and metrology. We proudly continue to provide training services through our outcome-based courses. As part of our training delivery, the following are the areas of the current courses offered face to face, online and attachment program.

## A: TRAINING COURSES

### 1.0 Awareness on Quality Management System (QMS) – ISO 9001

**1.1 Duration:** One working day

**1.2 Target participants:** Policy makers, board members, directors, managers, business owners, business executives, entrepreneurs and other decision makers.

#### 1.3 Course outline:

- Introduction of quality management system;
- Quality management principles and their application;
- Leadership and commitment;
- Quality policy and quality objectives;
- Impacts of ISO 9001 certification to business operations; and
- Roadmap to ISO 9001 certification.

#### 1.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- apply knowledge to improve interactive processes; and
- make informed decisions on implementation of the ISO 9001 standard requirements.

### **1.6 Course fee:**

The course fee is **TZS 200,000/- per person for Tanzanians and USD 200 per person for foreigners, non-refundable.**

## **2.0 Requirements and Implementation of ISO 9001**

**2.1 Duration:** Five working days

**2.2 Target participants:** Personnel working with organizations, service provision, industries or any other individuals.

### **2.3 Course outline:**

- Introduction and fundamental concepts of quality management system;
- principles of quality management system;
- Interpretation on implementation of standard requirements;
- Impacts of ISO 9001 certification to business operations; and
- Roadmap to ISO 9001 certification.

### **2.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret and implement the requirements of the standard;
- manage organizational/business processes;
- apply knowledge to reduce waste; and
- provide consistent products or services.

### **2.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **3.0 Quality Management System (ISO 9001) - Internal Auditor**

**3.1 Duration:** Five working days

**3.2 Target participant:** Personnel with knowledge of ISO 9001 and working in organizations, service provision or industries.

**Note:** Participant shall have knowledge on ISO 9001 standard requirements.

### 3.3 Course outline:

- Concept of internal audit;
- Importance of internal audit;
- Audit principles as per ISO 19011;
- Preparation and execution of internal audit;
- Reporting of internal audit findings; and
- Follow-up on corrective action.

### 3.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- interpret requirements of the standards;
- initiate and prepare audit activities;
- execute internal audits;
- document and report audit findings; and
- conduct follow-up audits.

### 3.5 Course fee:

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 4.0 Awareness on Environmental Management System (ISO 14001)

**4.1 Duration:** One working day

**4.2 Target participants:** Policy makers, board members, directors, managers, business owners, business executives, entrepreneurs and other decision makers.

### 4.3 Course outline:

- Introduction of environment management system;
- Standards requirements – ISO 14001;
- Impacts of environmental management system; and
- Roadmap to ISO 14001 certification.

### 4.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- make informed decisions on implementation of the ISO 14001 standard requirements; and
- comply with statutory and regulatory requirements.



#### **4.5 Course fee:**

The course fee is **TZS 200,000/- per person for Tanzanians and USD 200 per person for foreigners, non-refundable.**

### **5.0 Requirements and Implementation of ISO 14001**

**5.1 Duration:** Five working days

**5.2 Target participants:** Personnel working in organizations, service provision or industries and any other individual.

#### **5.3 Course outline:**

- Introduction to environmental management system;
- Interpretation on implementation of standard requirements;
- Impacts of environmental management system; and
- Roadmap to ISO 14001 certification.

#### **5.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret and implement the requirements of the standard;
- comply with statutory and regulatory requirements;
- apply knowledge on how to identify, control and reduce the number of environmental incidents that occur within the organization; and
- apply knowledge on how to reduce waste and improve resource efficiency.

#### **5.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

### **6.0 Environmental Management System (ISO 14001) - Internal Auditor**

**6.1 Duration:** Five working days

**6.2 Target participants:** Personnel with knowledge of ISO 14001 and working in organizations, service provision or industries.

**Note:** Participant shall have knowledge on ISO 14001 standard requirements.

### 6.3 Course outline:

- Concept of internal audit;
- Importance of internal audit;
- Audit principles as per ISO 19011;
- Preparation and execution of internal audit;
- Reporting of internal audit findings; and
- Follow-up on corrective action.

### 6.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- interpret requirements of the standards;
- initiate and prepare audit activities;
- execute internal audits;
- document and report audit findings; and
- conduct follow-up audits.

### 6.5 Course fee:

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 7.0 Awareness on Food Safety Management System (ISO 22000)

**7.1 Duration:** One working day

**7.2 Target participants:** Policy makers, board members, directors, managers, business owners, business executives, entrepreneurs and other decision makers.

### 7.3 Course outline:

- Introduction to food safety management system;
- Overview of standard requirements;
- Impacts of ISO 22000 certification to business operations; and
- Roadmap to ISO 22000 certification.

### 7.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- make informed decisions on implementation of the ISO 22000 standard requirements;

- apply knowledge to improve process interaction; and
- comply with statutory and regulatory requirements.

### **7.5 Course fee:**

The course fee is **TZS 200,000/- per person for Tanzanians and USD 200 per person for foreigners, non-refundable.**

## **8.0 Requirements and Implementation of ISO 22000**

**8.1 Duration:** Five working days

**8.2 Target participants:** Scientists, researchers, food technologists, quality assurance personnel, microbiologists, chemists, public health officers, quality control personnel, food processor and any other individual from food sector.

### **8.3 Course Outline:**

- Concept of food safety;
- Interpretation on implementation of standard requirements;
- Impacts of ISO 22000 certification to business operations; and
- Roadmap to ISO 22000 certification.

### **8.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret the requirements of the standard;
- apply knowledge on implementation of standard requirements; and
- comply with statutory and regulatory requirements.

### **8.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **9.0 Food Safety Management System (ISO 22000) – Internal Auditor**

**9.1 Duration:** Five working days

**9.2 Target participants:** Scientists, researchers, food technologists, quality assurance personnel, microbiologists, chemists, public health officers,

quality control personnel, food processor and any other individual from food sector.

**Note:** Participant shall have knowledge on ISO 22000 standard requirements.

### 9.3 Course outline:

- Concept of internal audit;
- Importance of internal audit;
- Audit principles as per ISO 19011;
- Preparation and execution of internal audit;
- Reporting of internal audit findings; and
- Follow-up on corrective action.

### 9.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- interpret requirements of the standards;
- initiate and prepare audit activities;
- execute internal audits;
- document and report audit findings; and
- conduct follow-up audits.

### 9.5 Course fee:

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 10.0 Good Manufacturing and Hygiene Practices (GMP & GHP) for Food Industry

**10.1 Duration:** Five working days

**10.2 Target participants:** Scientists, researchers, food technologists, quality assurance personnel, microbiologists, chemists, public health officers, quality control personnel, food processor and any other individual from food sector.

### 10.3 Course outline:

- Concept of food safety along the value chain;
- Principles of GMP;
- Principles of GHP; and
- Benefits of GMP and GHP.

### 10.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- comply with regulatory and statutory requirements;
- apply knowledge on implementation GMP and GHP principles in the business process;
- demonstrate competence towards certification; and
- provide quality products and services in consistent manner.

### 10.5 Course fee:

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners non-refundable.**

## 11.0 Hazard Analysis and Critical Control Points (HACCP)

**11.1 Duration:** Five working days

**11.2 Target participants:** Scientists, researchers, food technologists, quality assurance personnel, microbiologists, chemists, public health officers, quality control personnel, food processor and any other individual from food sector.

### 11.3 Course outline:

- Concept of food safety;
- Interpretation on implementation of standard requirements (TZS 1770);
- Impacts of HACCP certification to business operations; and
- Roadmap to HACCP certification.

#### **11.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret the requirements of the standard;
- apply knowledge on implementation HACCP requirements;
- identify critical control points in the food processes; and
- comply with regulatory and statutory requirements.

#### **11.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

### **12.0 Manufacturing Quality System**

#### **12.1 Duration:** Five working days

**12.2 Target participants:** Industrial production managers, supervisors, quality control, quality assurance and any individual working in the production processes.

#### **12.3 Course outline:**

- Concept of quality assurance and quality control;
- Process flow charts;
- Quality control tools and problem-solving techniques;
- Inventory control;
- Production facilities layout; and
- Process performance indicators.

#### **12.4 Benefits of the course:**

After successful completion of this course, participant will have the knowledge to:

- identify and monitor critical control points of the processes; and
- apply knowledge on application of quality control tools and problem-solving techniques.

#### **12.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 13.0 Quality Packaging

**13.1 Duration:** Five working days

**13.2 Target participants:** Manufacturers, processors, stockist, transporters, exporters and other individual from packaging sector.

**13.3 Course outline:**

- Introduction of quality packaging;
- Quality packaging requirements;
- Packaging materials and their designs;
- Types of packages and their application; and
- Marking and labelling requirements.

**13.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- Apply knowledge on selection of appropriate packaging materials; and
- mark and label packaged products appropriately.

**13.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 14.0 Good Laboratory Practices (GLP)

**14.1 Duration:** Five working days

**14.2 Target participants:** Laboratory analysts, laboratory technicians, chemists, microbiologists, metrologists, quality control and quality assurance officers, laboratory quality managers, manufacturing quality control personnel and other related professionals.

**14.3 Course outline:**

- Concept of good laboratory practices;
- Principles of good laboratory practices;
- Laboratory inventory management;
- Handling of laboratory chemicals, reagents and infectious materials;
- Laboratory waste management; and
- Importance of good laboratory practices.

#### **14.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- improve the performance of laboratory activities;
- properly handle chemicals and laboratory waste;
- comply with statutory and regulatory requirements; and
- Apply knowledge on implementation of ISO/IEC 17025 requirements.

#### **14.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

### **15.0 Laboratory Equipment Management**

**15.1 Duration:** Five working days

**15.2 Target participants:** Laboratory analysts, metrologists, scientists, researchers, laboratory technicians, laboratory technologists, quality assurance personnel, microbiologists, laboratory managers, chemists, quality control personnel and any other related professionals.

#### **15.3 Course outline:**

- Concept of laboratory equipment management;
- User specification requirements;
- Equipment qualifications;
- Minor troubleshooting and preventive maintenance;
- Calibration and verification; and
- Retirement and disposal of equipment.

#### **15.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- identify user requirements during selection and purchasing of equipment;
- apply knowledge on equipment maintenance, documentations and inventory; and
- perform equipment qualifications, calibration and verification.



### **15.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **16.0 Laboratory Quality Control**

**16.1 Duration:** Five working days

**16.2 Target participants:** Laboratory analysts, metrologists, scientists, researchers, laboratory technicians, laboratory technologists, quality assurance personnel, microbiologists, laboratory managers, chemists, quality control personnel and any other related professionals.

**NOTE:** The course is not applicable to medical laboratory personnel.

### **16.3 Course outline:**

- Concept of laboratory quality control and quality assurance;
- Quality control tools;
- Application and interpretation of control chart; and
- Internal and external quality controls used in laboratories.

### **16.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- select and apply appropriate quality control tools in the laboratory;
- identify all potential sources contributing to unreliable results;
- apply and interpret the control charts; and
- apply knowledge on implementation of ISO/IEC 17025 requirements.

### **16.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **17.0 Laboratory Quality System Documentation**

**17.1 Duration:** Five working days

**17.2 Target participants:** Laboratory analysts, laboratory technicians, chemists, microbiologists, metrologists, quality control and quality assurance officers, laboratory quality managers, manufacturing quality control personnel and other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements.

### **17.3 Course outline:**

- Concepts of quality system documentation;
- Formulation and maintenance of laboratory quality system documents (procedure, forms, checklist, work/equipment instruction); and
- Benefits of quality system documentation.

### **17.4 Benefits of the course**

After successful completion of this course, participant will be able to:

- apply knowledge on establishment of quality system documentation;
- manage documents and records generated in the processes; and
- apply knowledge on implementation of ISO/IEC 17025 requirements.

### **17.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

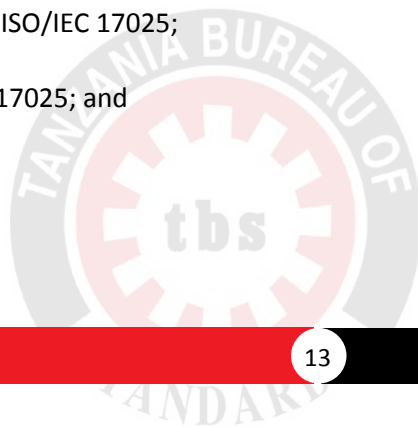
## **18.0 Awareness on ISO/IEC 17025**

**18.1 Duration:** One working day

**18.2 Target participants:** Policy makers, board members, directors, managers, business owners, executives and quality managers.

### **18.3 Course outline:**

- Overview and general requirements of ISO/IEC 17025;
- Risk-based thinking;
- Benefits of implementation of ISO/IEC 17025; and
- Roadmap towards accreditation.



#### **18.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- make informed decisions on implementation of the ISO/IEC 17025 standard requirements; and
- understand the benefits of accreditation.

#### **18.5 Course fee:**

The course fee is **TZS 200,000/- per person for Tanzanians and USD 200 per person for foreigners, non-refundable.**

### **19.0 Requirements and Implementation of ISO/IEC 17025**

**19.1 Duration:** Five working days

**19.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists, microbiologists, metrologists, quality control and quality assurance officers, laboratory quality managers and any other related professionals.

#### **19.3 Course outline:**

- Introduction to ISO/IEC 17025;
- Concept of risk-based thinking;
- Interpretation on implementation of standard requirements;
- Impacts on implementation of ISO/IEC 17025; and
- Roadmap towards accreditation.

#### **19.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret and implement the requirements of the standard;
- apply knowledge on establishment of the quality system; and
- comply with regulatory and statutory requirements.

#### **19.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

### **20.0 ISO/IEC 17025 - Internal Auditors**

**20.1 Duration:** Five working days

**20.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, metrologists, laboratory technologists,

microbiologists, quality control and quality assurance officers, laboratory quality managers and any other related professionals.

**Note:** Participants shall have knowledge on ISO/IEC 17025 standard requirements.

### **20.3 Course outline:**

- Concept of internal audit;
- Importance of internal audit;
- Audit principles as per ISO 19011;
- Preparation and execution of internal audit;
- Reporting of internal audit findings; and
- Follow-up on corrective action.

### **20.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- interpret requirements of the standards;
- initiate and prepare audit activities;
- execute internal audits;
- document and report audit findings; and
- conduct follow-up audits.

### **20.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **21.0 Awareness on ISO 15189**

**21.1 Duration:** One working day

**21.2 Target participants:** Policy makers, board members, directors, managers, business owners, business executives, medical practitioners, district medical officers, regional medical officers and hospital administrators.

### **21.3 Course outline:**

- Overview and general requirements of ISO 15189;
- Risk-based thinking;
- Benefits of implementation of ISO 15189; and
- Roadmap towards accreditation.

#### **21.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- make informed decisions on implementation of ISO 15189 standard requirements; and
- understand the benefits of accreditation.

#### **21.5 Course fee:**

The course fee is **TZS 200,000/- per person for Tanzanians and USD 200 per person for foreigners, non-refundable.**

### **22.0 Requirements and Implementation of ISO 15189**

**22.1 Duration:** Five working days

**22.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists, microbiologists, practitioners from medical laboratories and any other medical laboratory professionals.

#### **22.3 Course outline:**

- Introduction to ISO 15189;
- Concept of risk-based thinking;
- Requirements on implementation of the ISO 15189;
- Impacts of implementation of ISO 15189; and
- Roadmap towards accreditation.

#### **22.4 Benefits of the course**

After successful completion of this course, participant will be able to:

- interpret and implement the requirements of the standard;
- apply knowledge on establishment of the quality system; and
- comply with regulatory and statutory requirements.

#### **22.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 23.0 ISO 15189 - Internal Auditors

**23.1 Duration:** Five working days

**23.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists, microbiologists, practitioners from medical laboratories and any other medical laboratory professionals.

**Note:** Participants shall have knowledge on ISO 15189 standard requirements.

### 23.3 Course Outline:

- Concept of internal audit;
- Importance of internal audit;
- Audit principles as per ISO 19011;
- Preparation and execution of internal audit;
- Reporting of internal audit findings; and
- Follow-up on corrective action.

### 23.4 Benefits of the course:

After successful completion of this course, participant will be able to:

- interpret requirements of the standards;
- initiate and prepare audit activities;
- execute internal audits;
- document and report audit findings; and
- conduct follow-up audits.

### 23.5 Course fee:

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## 24.0 Laboratory Metrological Traceability

**24.1 Duration:** Five working days

**24.2 Target participants:** Quality managers, laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists and other related professionals from testing and medical laboratory.

### **24.3 Course outline:**

- Concept of metrological traceability;
- Metrological traceability as per ISO/IEC 17025 and ISO 15189;
- Establishment and maintenance of metrological traceability;
- Application of calibration certificate and interpretation of correction factor; and
- Management of calibrated equipment.

### **24.4 Benefits of the course:**

After successful completion of this course, the participant will be able to:

- apply knowledge on measurement traceability;
- manage plan for calibration and verification of laboratory equipment; and
- interpret and use calibration results.

### **24.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **25.0 Laboratory Risks and Opportunities**

**25.1 Duration:** Five working days

**25.2 Target participants:** Laboratory analysts, laboratory technicians, chemists, microbiologists, metrologists, quality control and quality assurance officers, laboratory quality managers, manufacturing quality control personnel and other related professionals.

### **25.3 Course outline:**

- Overview of risks and opportunities;
- Risks and opportunities as per ISO/IEC 17025 and ISO 15189;
- Risk assessment as per ISO 31000;
- Identification of opportunities; and
- Impacts of risks management.

#### **25.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge to conduct risk assessment and identification of opportunities;
- perform documentation of risks and opportunities; and
- comply with statutory and regulatory requirements.

#### **25.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

### **26.0 Method Validation and Verification for Testing Laboratories**

**26.1 Duration:** Five working days

**26.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists and any other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements.

#### **26.3 Course outline:**

- Concept of validation and verification;
- Method validation and verification as per ISO 17025;
- Basic Statistics related to method validation;
- Performance characteristics of the method validation;
- Documentation for method validation and verification; and
- Monitoring of validated or verified method.

#### **26.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge to develop method validation or verification plan;
- identify and select appropriate testing methods;
- apply knowledge to perform validation or verification of method;
- monitor performance of the method; and



- apply knowledge on implementation of ISO/IEC 17025 requirements.

### **26.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **27.0 Method Validation and Verification for Microbiology Laboratories**

**27.1 Duration:** Five working days

**27.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, microbiologists, laboratory technologists and any other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements.

### **27.3 Course outline:**

- Concept of validation and verification;
- Method validation and verification as per ISO 17025;
- Basic Statistics related to method validation;
- Performance characteristics of the method validation;
- Documentation for method validation and verification;
- Monitoring of validated or verified method; and
- Practical session.

### **27.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge to develop method validation or verification plan;
- identify and select appropriate microbiology methods;
- apply knowledge to perform method validation or verification;
- monitor performance of the method; and
- apply knowledge on implementation of ISO/IEC 17025 requirements.

**27.5 Course fee:**

The course fee is **TZS 750,000/- per person for Tanzanians and USD 750 per person for foreigners, non-refundable.**

**28.0 Uncertainty of Measurements for Testing Laboratories**

**28.1 Duration:** Five working days

**28.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, chemists, laboratory technologists and any other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements.

**28.3 Course outline:**

- Concept of measurement uncertainty;
- Measurement uncertainty as per ISO 17025;
- Basic Statistics related to measurement uncertainty;
- Measurement uncertainty approaches (GUM and NORDTEST); and
- Application of measurement uncertainty in reporting of testing results.

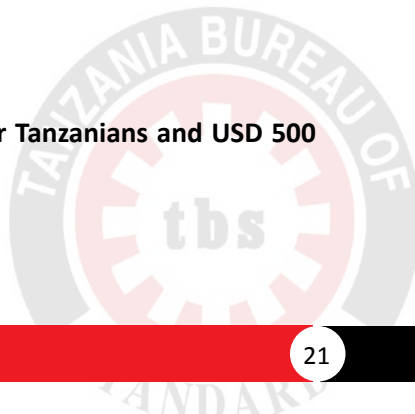
**28.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge on identification of uncertainty sources;
- estimate uncertainties of measurements in the laboratory;
- identify the appropriate approach for evaluating measurement uncertainty; and
- apply knowledge on implementation of ISO/IEC 17025 requirements.

**28.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**



## **29.0 Uncertainty of Measurements for Microbiology Laboratories**

**29.1 Duration:** Five working days

**29.2 Target participants:** Laboratory analysts, scientists, researchers, laboratory technicians, microbiologists, laboratory technologists and any other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements.

### **29.3 Course outline:**

- Concept of measurement uncertainty;
- Measurement uncertainty as per ISO 17025;
- Basic Statistics related to measurement uncertainty;
- Evaluation of Measurement uncertainty; and
- Application of measurement uncertainty in reporting of microbiology results.

### **29.5 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge on identification of uncertainty sources;
- estimate uncertainties of measurements in the laboratory;
- identify the appropriate approach for evaluating measurement uncertainty; and
- apply knowledge on implementation of ISO/IEC 17025 requirements.

### **29.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **30.0 Conformity Statement and Decision Rule**

**30.1 Duration:** Five working days

**30.2 Target participants:** Laboratory analysts, metrologists, scientists, laboratory technicians, chemists, laboratory technologists and other related professionals.

**Note:** Participant shall have knowledge on ISO/IEC 17025 standard requirements and measurement of uncertainty.

### **30.3 Course outline:**

- Concepts of statement of conformity and decision rule;
- Types of statements of conformity and decision rules; and
- Application of decision rule in reporting of test results.

### **30.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge on the establishment of decision rule;
- provide conformity statement on the test results; and
- account the risk associated with decision rule.

### **30.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **31.0 Root Cause Analysis in Laboratory**

### **31.1 Duration:** Five working days

**31.2 Target participants:** Laboratory analysts, metrologists, scientists, researchers, laboratory technicians, laboratory technologists, quality assurance personnel, microbiologists, laboratory managers, chemists and quality control personnel.

### **31.3 Course outline:**

- Overview of non-conforming work;
- Concept of root cause analysis;
- Methods for performing root cause analysis;
- Corrective actions and correction;
- Documentation and implementation of corrective actions; and
- Monitoring and review of corrective actions.

### **31.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- identify and document of the non-conforming work;
- select and apply appropriate root cause analysis tools; and

- implement, monitor and review corrective actions.

### **31.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **32.0 Inter-Laboratory Comparison (ILC)**

**32.1 Duration:** Five working days

**32.2 Target participants:** Laboratory analysts, metrologists, scientists, researchers, laboratory technicians, laboratory technologist and other related professionals.

### **32.3 Course outline:**

- Overview of ISO/IEC 17043 standard requirements;
- Methodology of performing Inter-Laboratory Comparison;
- Statistical tools for Inter-Laboratory Comparison;
- Data analysis and evaluation;
- Documentation and reporting of results; and
- Benefits of ILC participation.

### **32.4 Benefits of the course:**

After successful completion of this course, participant will be able to:

- apply knowledge to prepare and coordinate Inter-Laboratory Comparison schemes;
- participate in ILC; and
- evaluate and report ILC results.

### **32.5 Course fee:**

The course fee is **TZS 500,000/- per person for Tanzanians and USD 500 per person for foreigners, non-refundable.**

## **B: LABORATORY ATTACHMENT COURSES**

- a) Microbiological analysis;
- b) Physicochemical analysis;
- c) Mycotoxins analysis by using High Performance Liquid

Chromatography (HPLC) and Enzymes Linked Immunosorbent Assay (ELISA) techniques;

- d) Hydroquinone analysis in cosmetics products by using HPLC techniques;
- e) Kjeldahl technique;
- f) Inductive Coupled Plasma (ICP) technique;
- g) Cables and secondary battery testing;
- h) Testing of HDPE and UPVC pipes;
- i) Optical Emission Spectrometer (EOS) techniques;
- j) Leather products analysis;
- k) Petroleum products analysis;
- l) Bitumen analysis; and
- m) Gas chromatography (GC) techniques.

### **C: TAILORED COURSES**

In addition to the courses indicated on the list above, the Bureau may, on request, arrange tailored courses on standardization, safety & quality assurance, metrology and testing, specifically designed according to the client's needs.

### **D: GENERAL REQUIREMENTS OF TRAINING**

#### **1.0 Mode of application**

Interested applicant is advised to apply for the course through email [researchandtraining@tbs.go.tz](mailto:researchandtraining@tbs.go.tz) and provide the following information:

- i) Full name of the applicant;
- ii) Region and district of the applicant;
- iii) Contact (physical address/P. O. Box) of the applicant;

- iv) Phone number and email address of the applicant; and
- v) Organization name, TIN number, contact (physical address/P. O. Box), region and district (if any).

## **2.0 Mode of payment**

Course fee shall be paid in full and once prior to the date of training. Government bill will be issued to applicant. The course fee shall cover tuition fee, stationeries, training materials, food and refreshments. Each applicant shall be responsible for his/her own traveling and accommodation expenses.

## **3.0 Course presentation and methodology**

The course will be presented in Swahili and/or English languages. The course will be delivered in interactive tutor-led and trainee-led discussions, experience from trainees and group participation.

## **4.0 Course assessment and awards**

A participant, who attends the course, participates in group work, exercises and test and scores 60% and above of the final course evaluation shall be awarded a certificate of successful completion. Otherwise, shall be awarded a certificate of attendance. In addition, participant will be provided with training materials for further reference. Full attendance and participation are required during the course.

## **5.0 Postponement and cancellation of training**

If a participant fail to attend the training for any reason, the paid course fee will not be refunded. In case the Bureau postpones the training, the applicant will be informed **ten (10) days** before commencement of the training course together with re-scheduled date.

## **6.0 Training venue**

The training venue will be communicated during the course announcement.

## SUMMARY OF TRAINING AND LABORATORY ATTACHMENT COURSES

### A: TRAINING COURSES

S/N	COURSE TITLE	DURATION	FEES
1	Awareness on Quality Management System (QMS) – ISO 9001	One working day	TZS 200,000 for Tanzanians USD 200 for foreigners
2	Requirements and Implementation of ISO 9001	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
3	Quality Management System (ISO 9001) - Internal Auditor	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
4	Awareness on Environmental Management System (ISO 14001)	One working day	TZS 200,000 for Tanzanians USD 200 for foreigners
5	Requirements and Implementation of ISO 14001	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
6	Environmental Management System (ISO 14001) - Internal Auditor	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
7	Awareness on Food Safety Management System (ISO 22000)	One working day	TZS 200,000 for Tanzanians USD 200 for foreigners
8	Requirements and Implementation of ISO 22000	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
9	Food Safety Management System (ISO 22000) – Internal Auditor	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
10	Good Manufacturing and Hygiene Practices (GMP & GHP) for Food Industry	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
11	Hazard Analysis and Critical Control Points (HACCP)	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
12	Manufacturing Quality System	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners



S/N	COURSE TITLE	DURATION	FEES
13	Quality Packaging	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
14	Good Laboratory Practices (GLP)	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
15	Laboratory Equipment Management	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
16	Laboratory Quality Control	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
17	Laboratory Quality System Documentation	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
18	Awareness On ISO/IEC 17025	One working day	TZS 200,000 for Tanzanians USD 200 for foreigners
19	Requirements And Implementation of Iso/iec 17025	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
20	ISO/IEC 17025 - Internal Auditors	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
21	Awareness on ISO 15189	One working day	TZS 200,000 for Tanzanians USD 200 for foreigners
22	Requirements And Implementation of ISO 15189	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
23	ISO 15189 - Internal Auditors	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
24	Laboratory Metrological Traceability	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
25	Laboratory Risks and Opportunities	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners

S/N	COURSE TITLE	DURATION	FEES
26	Method Validation and Verification for Testing Laboratories	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
27	Method Validation and Verification for Microbiology Laboratories	Five working days	TZS 750,000 for Tanzanians USD 750 for foreigners
28	Uncertainty of Measurements for Testing Laboratories	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
29	Uncertainty Of Measurements for Microbiology Laboratories	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
30	Conformity Statement and Decision Rule	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
31	Root Cause Analysis in Laboratory	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners
32	Inter-Laboratory Comparison (ILC)	Five working days	TZS 500,000 for Tanzanians USD 500 for foreigners



## **B: LABORATORY ATTACHMENT COURSES**

- a) Microbiological analysis;
- b) Physicochemical analysis;
- c) Mycotoxins analysis by using High Performance Liquid Chromatography (HPLC) and Enzymes Linked Immunosorbent Assay (ELISA) techniques;
- d) Hydroquinone analysis in cosmetics products by using HPLC techniques;
- e) Kjeldahl technique;
- f) Inductive Coupled Plasma (ICP) technique;
- g) Cables and secondary battery testing;
- h) Testing of HDPE and UPVC pipes;
- i) Optical Emission Spectrometer (EOS) techniques;
- j) Leather products analysis;
- k) Petroleum products analysis;
- l) Bitumen analysis; and
- m) Gas chromatography (GC) techniques.

**For inquiries, contact us through hotline number 0800110827 or cell phone No. +255 733 700447 from Monday to Friday (08h00 -16h00).**

## TANZANIA BUREAU OF STANDARDS (TBS)

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## FOR MORE DETAILS CONTACT:

### DIRECTOR GENERAL

Tanzania Bureau of Standards

P. O. Box 9524, Dar es Salaam – Tanzania

Fax: +255-22-2450959 / Hotline: 0800110827

E-mail: [info@tbs.go.tz](mailto:info@tbs.go.tz) / Website: [www.tbs.go.tz](http://www.tbs.go.tz)

Complaints: [complaints@tbs.go.tz](mailto:complaints@tbs.go.tz)

## TBS ZONAL OFFICES

### SOUTHERN HIGHLANDS ZONE

(Iringa, Mbeya, Njombe and Songwe)

NHIF Building, 7<sup>th</sup> Floor

Along Avenue Road

P.O. Box 1674 Mbeya, Tanzania

Tel: 025 2502848 / Fax: 025 2502848

### LAKE ZONE

(Geita, Kagera, Mara, Mwanza,  
Simiyu and Shinyanga)

NSSF Building, 3<sup>rd</sup> Floor

P.O. Box 1814 Mwanza, Tanzania

Tel: 028 2505044 / Fax: 028 2505044

### CENTRAL ZONE

(Dodoma, Singida and Tabora)

Kambarage Tower, 6<sup>th</sup> Floor

P.O. Box 2956, Dodoma, Tanzania

Tel: 026 2320310 / Fax: 026 2320310

### NORTHERN ZONE

(Arusha, Kilimanjaro, Manyara and Tanga)

Ngorongoro Tourist Center, 6<sup>th</sup> Floor

P.O. Box 2399 Arusha, Tanzania

Tel: 027 2520143 / Fax: 027 2520143

### SOUTHERN ZONE

(Lindi, Mtwara and Ruvuma)

PSSSF Building, Sokoine House, 3<sup>rd</sup> Floor

P.O.Box 1396, Mtwara, Tanzania

Tel: 023 2334477 / Fax 023 2334477

### WESTERN ZONE

(Katavi, Kigoma and Rukwa)

NSSF Mafao House Building, 2<sup>nd</sup> Floor

P.O.Box 1276, Kigoma, Tanzania

Tel: 028 2804023 / Fax: 028 2804023

### EASTERN ZONE

(Dar es Salaam, Morogoro and Pwani)

PSSSF Commercial Complex, 4<sup>th</sup> Floor

P.O.Box 9524, Dar es Salaam, Tanzania