PUNJAB BOARD OF TECHNICAL EDUCATION

21-A, Kashmir Block Allama Iqbal Town, Lahore
www.pbte.edu.pkTel # 042-99260273 email: rnd.pbte@gmail.com
SAY NO TO CORRUPTION

No: PBTE/R&D/2026/21 Dated: 28-01-2026

NOTIFICATION

In pursuance of the NAVTTC Notification No. (D.G) (SS&C)/2021-QD-1 dated 26.11.2025, it is notified that the newly developed curricula of the following short courses have been approved by National Vocational & Technical Training Commission (NAVTTC) for their implementation with immediate effect in all institutes affiliated with PBTE.

- Advance Health Safety, Environment & Fire Safety Officer (6-months Course)
- Heat Exchanger Maintenance Technician (6-Months Course)
- Quality Assurance & Quality Control Technician (3-Months Course)
- Fabrication Supervisor (3-Months Course)
- Pressure Vessel Maintenance Technician (3-Months Course)

Soft copy of the curricula of the said courses may be downloaded from the website of PBTE i.e. www.pbte.edu.pk/textbooks.html.

SECRETARY

CC to:

1- PS to Chairperson PBTE, Lahore.
2- PA to Secretary PBTE, Lahore.
3- PA to Controller of Examinations PBTE, Lahore.
4- PA to DG Academics TEVTA, Lahore.
5- PA to DG Operations TEVTA, Lahore.
6- The Principals concerned.
7- Deputy Controller of Examinations (Conduct) PBTE, Lahore
8- Deputy Controller of Examinations (Secrecy) PBTE, Lahore.
9- System Analyst PBTE, Lahore.
10-Assistant Controller of Examinations (Technical) PBTE, Lahore.
11-Assistant Controller of Examinations (Conduct) PBTE, Lahore.
12-Assistant Controller of Examinations (Secrecy) PBTE, Lahore.
13-Assistant Controller of Examinations (P&P-I) PBTE, Lahore.
14-Assistant Controller of Examinations (P&P-II) PBTE, Lahore.
15-Assistant Secretary (Recognition) PBTE, Lahore.
16-IPS PBTE, Lahore.
17-IOW PBTE, Lahore.
18-Web Administrator PBTE, Lahore to upload on website of PBTE.
19-Notification File.

GOVERNMENT OF THE PUNJAB

TECHNICAL EDUCATION & VOCATIONAL TRAINING AUTHORITY

Curriculum For

Quality Assurance (QA) & Quality Control (QC) Technician

3-Months Short Course

CURRICULUM SECTION

ACADEMICS DEPARTMENT

96-H, GULBERG-II, LAHORE

Ph # 042-99263055-9, 99263064

dg.acad@tevta.gop.pk,director.cur@tevta.gop.pk

TRAINING OBJECTIVES:-

The course is designed to equip learners with the essential knowledge and practical skills of Quality Assurance (QA) and Quality Control (QC) practices, specifically tailored for both the services sector as well as industrial/production sectors. Learners will be introduced to fundamental quality concepts, enabling them to understand the role of quality in enhancing level of services, productivity, customer satisfaction, repute and organizational excellence.

In addition, the course aims to develop core competencies in inspection, testing, documentation, and compliance with internationally recognized standards. Learners will gain hands-on exposure to QA & QC tools, inspection methods, and reporting techniques that are directly applicable in real workplace environment.

The course also focuses on bridging the gap between course outcomes and market needs by aligning skills with current business's expectations regarding quality systems. By doing so, it ensures that learners not only understand theoretical aspects of QA & QC but are also capable of applying them effectively in diverse professional contexts.

CURRICULUM SALIENT

Min. Entry Level	:	Intermediate (Sciences) or Equivalent
Duration of Course	:	03 Months
Total Training Hours	:	400
Training Methodology	:	Practical 70%
		Theory 30%
Medium of Instruction	:	Urdu/English

- Examination & Certification body: PBTE / TTB

SKILL COMPETENCY DETAILS:-

On successful completion of this course, the learners will be able to:

1. Apply the quality in a broader perspective in light of work ethics
2. Relate the fundamental concepts of quality.
3. Differentiate between inspection, quality assurance, and quality control.
4. Apply basic quality management principles in services and industrial environment.
5. Deduce and implement key quality standards.
6. Use basic QA & QC tools.
7. Demonstrate problem-solving and root cause analysis techniques for quality improvement.
8. Apply basic inspection and testing procedures using appropriate instruments.
9. Assure the principles and applications of non-destructive testing.
10. Apply the concept of “Waste” and its relation with Quality.
11. Prepare and maintain QA & QC documentation and reports.
12. Participate effectively in audits and compliance assessments.
13. Align workplace practices with business’s expectations regarding quality.
14. Prepare and present standardized quality reports.

KNOWLEDGE PROFICIENCY DETAILS

On completion of the course, the learners will have knowledge of:

1. Basic concepts of quality.
2. Interpreting the importance of quality in service and industrial sectors.
3. Differences and interrelationship between QA & QC.
4. Fundamentals of quality management systems and international standards.
5. Basic quality tools and their applications in problem-solving.
6. General inspection and testing methods used in industry.
7. Common QA & QC documentation and reporting practices.
8. The role of QA & QC in compliance and customer satisfaction.
9. How quality systems align with business's expectations and global best practices.
10. Identification of waste and techniques to eliminate or minimize waste

SCHEME OF STUDIES

Quality Assurance (QA) & Quality Control (QC) Technician

(3- Months Course)

Sr. No.	Main Contents	Theory Hours	Practical Hours	Total Hours
1	Introduction to Quality	8	4	12
2	Fundamentals of QA & QC	20	4	24
3	Quality Management Systems	32	8	40
4	Tools & Techniques	16	40	56
5	Inspection & Testing Practices	12	96	108
6	Lean Waste Management	12	8	20
7	Documentation & Reporting	12	24	36
8	Workplace Application & Final Project	8	96	104
Total Hours		**120**	**280**	**400**

DETAIL OF COURSE CONTENTS

Quality Assurance (QA) & Quality Control (QC) Technician

3- Months Course

Sr. No.	Main Contents	Theory Hours	Practical Hours	Total Hours
1	**Introduction to Quality** 1.1. Understanding Quality 1.2. Evolution of Quality 1.3. Standardization and its significance 1.4. Dimensions of Product Quality 1.4.1. Performance 1.4.2. Features 1.4.3. Reliability 1.4.4. Conformance 1.4.5. Durability 1.4.6. Serviceability 1.4.7. Aesthetics 1.4.8. Perceived Quality 1.5. Dimensions of Service Quality 1.5.1. Reliability 1.5.2. Responsiveness 1.5.3. Assurance 1.5.4. Empathy 1.5.5. Tangibles 1.6. Role of quality in customer satisfaction, repute, productivity and competitiveness.	8	4	12
2	**Fundamentals of QA & QC** 2.1. Work Ethics	20	4	24

	2.2. Occupational Health & Safety 2.3. Introduction to QA & QC 2.4. Quality concepts: inspection vs. quality assurance 2.5. Role of QA & QC Technician in Industry and services sector 2.6. Overview of ISO standards 2.6.1. Introduction 2.6.2. ISO 9001 2.6.3. ISO 9712 2.6.4. ISO 14001 2.6.5. ISO 17025 2.6.6. ISO 21001 2.6.7. ISO 45001 2.6.8. ISO 50001 2.7. Introduction to Total Quality Management (TQM) & Continuous Improvement 2.8. Real Life Case Study/Group activity			
3	**Quality Management Systems** 3.1. Elements of Quality Management Systems (QMS) 3.1.1. Quality Policy and Objectives 3.1.2. Organizational Structure and Responsibilities 3.1.3. Document Control 3.1.4. Process Management 3.1.5. Resource Management 3.1.6. Product/Service Realization 3.1.7. Inspection and Testing 3.1.8. Nonconformance and Corrective	32	8	40

	Action 3.1.9. Continuous Improvement 3.1.10. Customer Focus and Feedback 3.1.11. Audits and Reviews 3.2. Documentation control: SOPs, work instructions, formats 3.3. Non-conformance reports (NCRs) & corrective/preventive actions (CAPA) 3.4. Auditing basics 3.4.1. Introduction 3.4.2. Types 3.4.3. Principles 3.4.4. Process 3.4.5. Tools & Techniques 3.4.6. Benefits 3.5. Role of QA & QC in compliance with regulatory and accreditation obligations			
4	**Tools & Techniques** 4.1. Basic quality tools: 4.1.1. Plan, Do, Check, Act (PDCA) Cycle 4.1.2. Check sheets 4.1.3. Histograms 4.1.4. Scatter Diagrams 4.1.5. Flow Charts 4.1.6. Pareto analysis 4.1.7. Cause & effect diagram (Fishbone/Ishikawa Diagram) 4.1.8. Control charts 4.1.9. Root Cause Analysis 4.1.10. 5 Whys	16	40	56

	4.1.11. Failure Mode and Effects Analysis (FMEA) 4.2. Sampling techniques & inspection methods 4.3. Calibration of instruments and measuring tools 4.4. Introduction to statistical process control			
5	**Inspection & Testing Practices** 5.1. Visual inspection techniques 5.2. Dimensional inspection (using scales, calipers, micrometers, gauges) 5.3. Destructive & non-destructive testing 5.4. Laboratory procedures & reporting	12	96	108
6	**Lean Waste Management** 6.1. Understanding the concept of Waste 6.2. Waste as a quality problem. 6.3. Types of Waste 6.4. Role of QA & QC in minimizing Waste 6.5. Waste and Total Quality Management (TQM) 6.6. Kaizen and Waste elimination 6.7. 8 Wastes of Lean (Muda/TIMWOODS) 6.8. 7Rs framework for Waste elimination and Process Improvement 6.9. Practical applications of waste identification and elimination techniques in services and Industry	12	8	20
7	**Documentation & Reporting** 7.1. Preparing Inspection & Test Plans (ITP) 7.2. Checklists & log sheets 7.3. Reporting	12	24	36

	7.3.1. QA & QC reports 7.3.2. Compliance Reports			
8	**Workplace Application & Final Project** 8.1. Case studies from services and/or industrial sectors 8.2. Workplace visits / on-job practical assignments 8.3. Group project: developing a sample QA & QC plan 8.4. Practical Activity “Spot and Stop the Waste” 8.5. Mock drill for QA & QC Audit and Presentation	8	96	104
Total Hours		**120**	**280**	**400**

LIST OF TOOLS AND EQUIPMENT

(FOR A CLASS OF 25 STUDENTS)

Name of Trade	**QA & QC Technician**
Duration of Course	**03- Months**

Sr. No.	**NOMENCLATURE OF TOOLS & EQUIPMENT**	**QUANTITY**
1	Vernier Calipers (Digital/Analog)	5 sets
2	Micrometers (0–25 mm & 25–50 mm)	5 sets
3	Dial Gauge with Stand	2 sets
4	Feeler Gauge	5 sets
5	Thread Pitch Gauge	2 sets
6	Surface Plate (Granite or Cast Iron)	1 unit
7	Steel Rulers (300 mm)	10 pcs
8	Universal Bevel Protractor	2 sets
9	Magnifying Glass (Illuminated, 10x)	5 pcs
10	Portable Light Source (LED Torch for Surface Checks)	5 pcs
11	Safety Gear (Goggles, Gloves, Lab Coats, Helmets)	25 sets
12	Magnetic Particle Test (MT) Yoke with Powder	1 kit
13	Ultrasonic Flaw Detector (Portable, Training Model)	1 unit
14	Test Block for UT (Calibration Block IIW or V1)	1 unit
15	Radiography Test Films viewer (for demonstration only, not live X-ray)	1 demo set
16	Computer Systems with MS Office / Excel	5 units
17	Printer	1 unit
18	Scanner	1 unit
18	Multimedia for Presentations	1 unit
19	Kaizen Boards (Visual Management Boards)	2 boards

Sr. No.	**CONSUMABLES ITEMS/ MATERIALS**	**QUANTITY**
1	Dye Penetrant Test (PT) Kit (Cleaner, Penetrant, Developer)	2 kits
2	MT Powder (Magnetic Particles, dry/wet)	As required
3	Radiography Demo Films (pre-exposed, for training)	As required
4	Scrap Metal Pieces (Plates, Welded Joints, Pipes with defects)	40 pcs
5	Plastics/Wood/Composite samples	As required
6	Disposable Gloves (for PT/MT practice)	3 boxes

PROPOSED MINIMUM QUALIFICATION OF TEACHER / INSTRUCTOR

4.4.1. Instructor

- MSc. /MS/MPhil in Quality Management / Total Quality Management / Industrial Management / Industrial Engineering preferably with 1-year of relevant Industrial/Services/Education sector experience

OR

- BSc / BE in Quality Management / Total Quality Management / Industrial Management/Industrial Engineering or equivalent with 4-years of relevant Industrial/Service/Education sector experience

OR

- BSc. with certification as lead implementer or lead auditor in relevant field of Quality, with 06-years of industrial /services sector experience.

4.4.2. Demonstrator

- DAE (Mechanical, Instrumentation, or Metallurgy or other relevant field) with 3 years of relevant Industrial/Service/Education sector experience

EMPLOYABILITY OF PASS-OUTS

Graduates of this course will possess competencies in quality domain falling under inspection, testing, documentation, lean waste management and compliance with ISO standards and Quality Management Systems making them employable in both local and international industries.

1. Potential Job Roles

- Quality Control Inspector
- Quality Assurance Assistant
- NDT Technician (Entry Level – UT, RT, PT, MT exposure)
- Inspection & Testing Assistant
- Production/Process Quality Assistant
- Documentation & Reporting Officer (QA/QC Records)
- Lean implementor/Coordinator

2. Employing Sectors

- Manufacturing Industry (automotive, cement, packaging, textiles, pharmaceuticals and others)
- Construction & Infrastructure (QA/QC for site works, general quality inspections, material or product testing)
- Power & Energy Sector (thermal, hydel, renewables – QA/QC in operations & maintenance)
- Oil & Gas / Petrochemical (inspection, NDT, compliance with safety & quality standards)
- Testing Laboratories (ISO 17025 accredited labs, calibration, material testing)
- TVET & Training Sector (as QA/QC support staff, lab demonstrators, technical assistants)
- Export-Oriented Industries (garments, surgical, sports goods – compliance with ISO & buyer audits)

3. Career Progression Pathways

- QA/QC Engineer / Supervisor (with degree + experience)
- Lead Implementer / Auditor (ISO 9001, ISO 14001, ISO 45001)
- Certified NDT Level II/III Specialist
- Quality/Process Improvement Coordinator (Lean, Six Sigma Green Belt)

4. Self-Employment Opportunities

- Establishing as a freelance inspector or third-party QA/QC service provider
- Running testing/calibration setups in collaboration with accredited labs
- Providing documentation support (SOPs, ITPs, QA/QC reports) to SMEs and contractors

REFERENCE BOOKS / MATERIALS / MANUALS

Category	Title / Standard / Resource	Author / Publisher / Source
Core Textbooks	Juran's Quality Handbook	J.M. Juran & Joseph A. Defeo
	Quality Control & Industrial Statistics	Acheson J. Duncan
	Total Quality Management	Dale H. Besterfield et al.
	Introduction to Statistical Quality Control	Douglas C. Montgomery
	Non-Destructive Testing Handbook (Vols. on UT, RT, MT, PT)	ASNT
	Quality Assurance & Quality Control in the Analytical Laboratory	D. Brynn Hibbert
Standards & Guidelines	ISO Standards, manuals and guidelines	ISO
	API Recommended Practices	American Petroleum Institute
	PSQCA Manuals	Pakistan Standards & Quality Control Authority
Supplementary Resources	ASQ Body of Knowledge	American Society for Quality
	Kaizen Institute Publications	Kaizen Institute
	NDT Resource Center	ndt-ed.org (Free Resource)
	Six Sigma Green Belt Handbooks	Various

Curriculum Development Committee

S. No.	Name & Designation	Position
1	**Engr. Abid Latif** Senior Management Cader Engr.(SIE)	Convener
2	**Engr. Mushaf Ismail** Assistant Director (R&D) TEVTA, Lahore	Member
3	**Engr.T Mr. Muhammad Rasheed** Instructor (Mech.) CMD Cell TEVTA, Lahore	Member

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