Republic of the Philippines
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway, Taguig, Metro Manila

142nd TESDA BOARD MEETING
12 December 2023, Wednesday, 1:30 P.M.
TESDA Board Room, 7th Floor, TESDA Main Building
Taguig City

Resolution No. 2023-11
(Page 1 of 4)

APPROVING AND PROMULGATING THE AMENDED TRAINING REGULATIONS FOR BIOMEDICAL EQUIPMENT SERVICING NC II, INSTRUMENTATION AND CONTROL SERVICING NC II, INSTRUMENTATION AND CONTROL SERVICING NC III, INSTRUMENTATION AND CONTROL SERVICING NC IV *and* FOOTWEAR MAKING NC II *to* SHOEMAKING NC I *and* SHOEMAKING NC II

WHEREAS, TESDA Board Resolution No. 2006-09 on "Approving and Promulgating the Training Regulations for Biomedical Equipment Servicing NC II" was issued last 20 April 2006 during the 49th TESDA Board Meeting;

WHEREAS, TESDA Board Resolution No. 2006-28 was issued "Approving and Promulgating the Training Regulations for Instrumentation and Control Servicing NC II, Instrumentation and Control Servicing NC III and Instrumentation and Control Servicing NC IV last 14 December 2006 during the 53rd TESDA Board Meeting;

WHEREAS, TESDA Board Resolution No. 2004-20 was issued "Approving and Promulgating the Training Regulations for Footwear Making NC II last 09 December 2004 during the 53rd TESDA Board Meeting;

WHEREAS, it is the policy of TESDA to review after three (3) years any Training Regulations (TRs) promulgated by the TESDA Board;

WHEREAS, there is a need to review the existing Training Regulations in view of the developments in technology and current trends in the electrical and electronics industry and footwear industry and to align its content with the most recent global standards;

WHEREAS, the Biomed Society of the Philippines (BSP) with the assistance of the Qualifications and Standards Office (QSO) of TESDA has reviewed and recommended to amend the existing Training Regulations for Biomedical Equipment Servicing NC II to respond to the current skills requirements of the industry with its new technologies and industry manpower set-up and recommended amendments;

WHEREAS, the Philippine Instrumentation and Control Society (PICS) with the assistance of QSO of TESDA, has reviewed and recommended to amend the existing Training Regulations for Instrumentation and Control Servicing NC II, Instrumentation and Control Servicing NC III and Instrumentation and Control Servicing NC IV to respond to the current skills requirements of the industry with its new technologies and industry manpower set-up and recommended amendments;

Republic of the Philippines
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway, Taguig, Metro Manila

142nd TESDA BOARD MEETING
12 December 2023, Wednesday, 1:30 P.M.
TESDA Board Room, 7th Floor, TESDA Main Building
Taguig City

Resolution No. 2023-11

WHEREAS, the Philippine Footwear Federation, Inc. with the assistance of QSO of TESDA, has reviewed and recommended to amend the existing Training Regulations for Footwear Making NC II to Shoemaking NC I and Shoemaking NC II to respond to the current skills requirements of the industry with its new technologies and industry manpower set-up and recommended amendments;

WHEREAS, during the 144th Standards Setting and Systems Development (SSSD) Committee Meeting held on 22 March 2022, the Committee deliberated and agreed to remand the TR for Biomedical Equipment Servicing NC II and defer its presentation as the materials did not highlight specific data on the utilization of the TR and comparative matrix of the jobs and functions of biomed technicians by level. As such, the data and additional information missing from the earlier committee meeting were presented during the 157th SSSD Committee Meeting held on 19 October 2023. The Committee deliberated and agreed to endorse for approval of the TESDA Board the amendments to the said TR, which is attached as Annex "A" and made an integral part of this Resolution;

WHEREAS, during the 157th Standards Setting and Systems Development (SSSD) Committee Meeting held on 19 October 2023, the Committee deliberated and agreed to remand the amended TRs for Instrumentation and Control Servicing NC II, Instrumentation and Control Servicing NC III and Instrumentation and Control Servicing NC IV and defer its presentation as the materials did not highlight specific information on the levels in PQF and its indicators and the levels of technicians and technologies identified in different accords demanded on the mobility of students and workers. As such, during the 160th SSSD Committee Meeting held on 29 November 2023, the Committee further deliberated and agreed to endorse for approval of the TESDA Board the amendments to the said TRs, which is attached as Annex "B", Annex "C", Annex "D" and made an integral part of this Resolution;

WHEREAS, during the 154th Standards Setting and Systems Development (SSSD) Committee Meeting held on 27 April 2023, the Committee deliberated and agreed to remand the amended TRs for Shoemaking NC I and Shoemaking NC II and defer its presentation as the data of the Labor Market Information (LMI) needs adjustments and validation. As such, during the 160th SSSD Committee Meeting held on 29 November 2023, the Committee further deliberated and agreed to endorse for approval of the TESDA Board the amendments to the said TRs, which are attached as Annex "E" and Annex "F" and made an integral part of this Resolution;

Republic of the Philippines
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway, Taguig, Metro Manila

142nd TESDA BOARD MEETING
12 December 2023, Wednesday, 1:30 P.M.
TESDA Board Room, 7th Floor, TESDA Main Building
Taguig City

Resolution No. 2023-11

NOW, THEREFORE, BE IT RESOLVED AS IT IS HEREBY RESOLVED, that the TESDA Board in its meeting today, 12 December 2023 at 1:30 P.M. has approved and promulgated the aforementioned amendments in the Training Regulations for Biomedical Equipment Servicing NC II which appears in Annex "A", Instrumentation and Control Servicing NC II, which appears in Annex "B", Instrumentation and Control Servicing NC III, which appears in Annex "C" and Instrumentation and Control Servicing NC IV, which appears in Annex "D", Shoemaking NC I, which appears in Annex "E" and Shoemaking NC II which appears Annex "F", as herein appended;

BE IT RESOLVED, FINALLY, that:

(1) Copy of this Resolution and the abovementioned Training Regulations be published in the Official Gazette or in a newspaper of general circulation, and disseminated to all concerned, and the same shall be effective fifteen (15) days upon publication;

(2) All programs to be registered under this new Training Regulations must comply with the requirements of the aforementioned Training Regulations. The registration under this new Training Regulations shall commence on the date of effectivity as indicated in the Implementing Guidelines/TESDA Circular for the deployment of the Training Regulations to be issued by the TESDA Secretariat; and

(3) Graduates of TVET programs covered by the aforementioned Training Regulations shall be required to undergo mandatory assessment under the national assessment and certification program.

Adopted this 12th day of December 2023.

SEC. BIENVENIDO E. LAGUESMA
DOLE Secretary and
TESDA Board Chairperson

SUHARTO T. MANGUDADATU, Ph.D.
Secretary/Director General TESDA

J. PROSPERO E. DE VERA III
Chairman, CHED

MR. RENE LUIS M. TADLE
Board Member, Labor Sector

Republic of the Philippines
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
East Service Road, South Luzon Expressway, Taguig, Metro Manila

142nd TESDA BOARD MEETING
12 December 2023, Wednesday, 1:30 P.M.
TESDA Board Room, 7th Floor, TESDA Main Building
Taguig City

Resolution No. 2023-11
(Page 4 of 4)

MR. RAMON R. DE LEON
Board Member, Labor Sector

MR. ROGELIO J. CHAVEZ, JR.
Board Member, Labor Sector

MS. SHIRLEY VICOY-YORONG
Board Member, Labor Sector

DR. LEONIDA BAYANI-ORTIZ
Board Member, Employer Sector

MS. FLORDELIZA CUSI LEONG
Board Member, Employer Sector

MS. MARY G. NG
Board Member, Business and Investment Sector

Prepared by:

ATTY. JAN MICHAEL P. JARO
TESDA Board Secretariat

ANNEX A

AMENDMENT ON TRAINING REGULATIONS FOR BIOMEDICAL EQUIPMENT SERVICING NC II

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
Qualification Title	
Biomedical Equipment Servicing NC II	Biomedical Equipment Servicing NC II
Job Title	
• Biomedical Equipment Technician (BMET) • Medical Equipment Mechanic/ Repairer	• Biomedical Equipment Technician (BMET) • Biomedical Technician • Field Service Technician
Section 1 - Definition of the Qualification	
This Biomedical Equipment Servicing NC II Qualification consists of competencies that a person must achieve to install, perform corrective and preventive maintenance, repair biomedical equipment, assess and refer biomedical equipment.	The Biomedical Equipment Servicing NC II Qualification consists of competencies that must be possessed to enable a person to install/assemble, perform corrective and preventive maintenance and evaluate and refer basic biomedical equipment.
Section 2- Competency Standards	
Basic Competencies 1. Participate in workplace communication 2. Work in team environment 3. Practice career professionalism 4. Practice occupational health and safety procedures	Basic Competencies 1. Participate in workplace communication 2. Work in a team environment 3. Solve/address general workplace problems 4. Develop career and life decisions 5. Contribute to workplace innovation 6. Present relevant information 7. Practice occupational safety and health policies and procedures 8. Exercise efficient and effective sustainable practices in the workplace 9. Practice entrepreneurial skills in the workplace
Common Competencies 1. Implement and monitor infection control policies and procedures 2. Respond effectively to difficult/challenging behavior 3. Apply basic first aid 4. Maintain high standard of patient services	Common Competencies 1. Use hand tools 2. Perform mensuration and calculation 3. Prepare and interpret technical drawings 4. Apply quality standards 5. Perform computer operations 6. Terminate and connect electrical wiring and electronic circuits 7. Test electronic components
Core Competencies	Core Competencies 1. Install/Assemble basic medical equipment

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
1. Install biomedical equipment 2. Perform corrective maintenance on biomedical equipment 3. Perform preventive maintenance on biomedical equipment 4. Repair biomedical equipment 5. Assess and refer biomedical equipment	2. Perform corrective maintenance on basic medical equipment 3. Perform preventive maintenance on basic medical equipment 4. Evaluate and refer basic medical equipment
Section 3 - Training Standards	
3.1 Curriculum Design	
Nominal Training Duration	
960 hours - total	37 Hrs. (Basic Competencies) 52 Hrs. (Common Competencies) 528 Hrs. (Core Competencies) 617 Hours 304 Hrs. - Supervised Industry Learning (SIL)
3.2 Training Delivery	
The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. • The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Training program allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Training programs are registered with the UTPRAS.	1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards) b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. d. Assessment is based in the collection of evidence of the performance of work to the industry required standards; e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. f. Training program allows for recognition of prior learning (RPL) or current competencies; g. Training completion is based on satisfactory completion of all specified competencies.
The competency-based TVET system recognizes various types of delivery modes, both on and off-	2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer just facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners. • Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations. • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies. • Project-based instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.	the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs: **2.1 Institution- Based:** • Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • Supervised Industry Learning (SIL) or on-the-job training (OJT) is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies as prescribed in the training regulations. It is imperative that the deployment of trainees in the workplace is adhered to training programs agreed by the institution and enterprise and status and progress of trainees are closely monitored by the training institutions to prevent opportunity for work exploitation. • The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components. **2.2 Enterprise-Based:** • Formal Apprenticeship - Training within employment involving a contract between an

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
	apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat. **2.3 Community-Based:** • Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).
3.3 Trainee Entry Requirements	
Trainees or students who wants to entry into these qualifications should possess the following requirements: • 16 years old and above • Must pass the trainability / aptitude test • Can communicate effectively both oral and written form • Physically, emotionally and mentally fit • Can perform basic mathematical computation This list does not include specific institutional requirements such as educational attainment, appropriate work experience, and others that may be required of the trainees by the school or training center delivering this TVET program.	Trainees or students wishing to gain entry into this course should possess the following requirements: • Completed at least 10 yrs. basic education or an alternative learning systems (ALS) certificate of completion with grade 10 equivalent holder • Basic communication skills (both oral and written form) • Basic mathematical skills This list does not include specific institutional requirements such as written entrance exam, and other that may be required of the trainees by the school or training center delivering TVET program.

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments

3.4 List of Tools, Equipment and Materials

BIOMEDICAL EQUIPMENT SERVICING NC II

Recommended list of tools, equipment and materials for the training of 25 trainees for Biomedical Equipment Servicing NCII are as follows:

TOOLS		EQUIPMENT		MATERIALS	
Qty.	Description	Qty.	Description	Qty.	Description
4 sets	Pliers; (assorted)	1	Microscope		Electronic devices assorted
	Screwdrivers; (assorted)	1	Medical Refrigerator/Freezer		Soldering lead
	Soldering iron/gun	1	ECG machine		Sealing materials
	Electric hand drill and assorted bits	1	Clinical weighing scale		Work clothes
	Alligator clip with wire	1	Defibrillator		Hand gloves
	De-soldering tool	1	EENT Diagnostic set		Goggles
	Wrenches (assorted)	1	Gooseneck lamp/ Examining light		Mask
	Power supply variables	1	Laryngoscope with blades		Tape (assorted)
	Cleaning brush	1	Oxygen unit		Oil, cleaning agent
	Work bench	1	Sphygmomanometer		
	Hammer (Shockless/Mechanical)	1	Suction apparatus		
	Breadboard	1	Anesthesia machine		
	Tester Analog/Digital	1	Autoclave		
	Oscilloscope	1	OR/DR light		
	Signal Generator	1	OR table		
	Integrated Circuit Extractor		Infant Incubator		
		1	Clinical Incubator		
		1	Nebulizer		
		1	Heart/Lung machine		
		1	Cardiac monitor		
		1	Circoelectric bed		
		1	Centrifuge		

Recommended list of tools, equipment and materials for the training of 25 trainees for Biomedical Equipment Servicing NC II.

Up-to-date tools, materials, and equipment of equivalent functions can be used as alternatives. This also applies in consideration of community practices and their availability in the local market.

(*For laboratory group exercises, each grouping shall have a maximum of 5 participants.*)

TOOLS & TEST EQUIPMENT		
Quantity	Quantity	Description/Specification
5	sets	Pliers; (assorted)
5	sets	Screwdrivers; (assorted)
10	pcs	Soldering iron/gun
5	sets	Electric hand drill and assorted bits
10	sets	Alligator clip with wire
10	pcs	De-soldering tool
5	sets	Wrenches (assorted)
5	pcs	Cleaning brush
5	unit	Power supply variables
5	unit	Work bench
5	pcs	Hammer (Shockless/Mechanical)
25	pcs	Breadboard
10	unit	Tester Analog/Digital
2	unit	Oscilloscope
2	unit	Signal Generator
5	unit	Integrated Circuit Extractor
5	set	Standard Hex Key Set/Allen Inch Hex Driver Set
10	pcs	Tweezer
10	unit	Multimeter
1	unit	Multi parameter Patient Simulator
2	unit	Electrical Safety Analyzer
1	unit	Pressure Simulator
1	unit	Test Weight (50 kg)
2	unit	Test Weight (20 kg)
2	unit	Test Weight (10 kg)
2	unit	Test Weight (5 kg)
2	unit	Test Weight (2 kg)
2	unit	Pressure Meter
2	unit	Thermohygrometer
2	unit	Sound Meter
2	unit	Tachometer
5	sets	Infusion Set

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments

EQUIPMENT		
Quantity	Unit	Description/Specification
1	unit	Microscope
1	unit	ECG machine
1	unit	Clinical weighing scale
1	unit	Laryngoscope with blades
1	unit	Examining light
1	unit	EENT Diagnostic set (e.g. *ophthalmoscope, otoscope.*)
1	unit	Sphygmomanometer
1	unit	Surgical Light
1	unit	Surgical Table
1	unit	Suction Devices/ Aspirators
1	unit	Medical Gauge and Flowmeter
1	unit	Clinical Incubator
1	unit	Nebulizer
1	unit	Centrifuge
1	unit	Medical Refrigerator/ Freezer
1	unit	Circoelectric bed

MATERIALS		
Quantity	Unit	Description/Specification
5	roll	Soldering lead
5	can/tube	Sealing materials
5	roll	Tape (assorted)
5	sets	Electronic devices, assorted
5	can/bottle	Oil, cleaning agent
25	pairs	Hand gloves
25	pcs	Mask
25	pairs	Goggles
25	pcs	Work clothes

Note: Subject to conformity of the health and safety protocols

3.5 Training Facilities

TEACHING / LEARNING AREAS	SIZE IN METERS	AREA IN S. METERS	QTY.	TOTAL AREA IN SQ. METERS
Laboratory Area	5 X 10	50	1	50
Tool Room	4 X 5	20	1	20
Storage Room/	4X5	20	1	20
Learning Resources Area*	5 X 7	35	1	35
Wash Area/Comfort Room (male & female)*	2.5 X 4	10	1	10
Admin and Staff Room	5 X 5	25	1	25
Circulation Area**			1	30
Total				200
Total Workshop Area				**200**

SPACE REQUIREMENT	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Laboratory Area (inclusive of lecture area)	5 X 10	50	1	50
Tool Room / Storage Room	4 X 5	20	1	20
Learning Resources Area	5 X 7	35	1	35
Wash Area/Comfort Room	2.5 X 2	5	2	10
Admin and Staff Room	5 X 5	25	1	25
Sub-Total				**140**
Circulation Area	Area requirement is equivalent to 30% of the total teaching/learning areas.			42
Total Area				**182**

NOTE: - Access to and use of equipment /facilities can be provided through cooperative arrangements or MOA with other partner- hospitals/companies

- For those who have special facilities requirements, they are required to provide a separate computation of training facilities

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
3.6 Trainer's Qualifications	
• Must be a certified electrical, electronic technician with background/orientation on health care/services • Must have undergone training on Training Methodology II (TM II) • Must be physically, emotionally and mentally fit • Must possess good moral character With at least 2 years experience in the health service industry	• Must have a bachelor's degree in engineering / formal sciences or a certified electrical, electronic technician with background/orientation on health care equipment services • Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Biomedical Equipment Servicing NC II • Must have at least 2-years relevant industry experience in healthcare service industry for the past 5 years.
3.7 Institutional Assessment	
. Institutional Assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	Institutional Assessment is gathering of evidences to determine the achievements of the requirements of the qualification to enable the trainer make judgement whether the trainee is competent or not competent.
Section 4. Assessment and Certification Arrangements	
4.1 To attain the National Qualification of Biomedical Equipment Servicing NC II, the candidate must demonstrate competence through project-type assessment covering all the units listed in Section 1. Successful candidates shall be awarded a National Certificate, NC II signed by the TESDA Director General. 4.2 Assessment shall focus on the core units of competency. The tool and common units shall be integrated or assessed concurrently with the core units 4.3 The following are qualified to apply for assessment and certification: 4.3.1 Graduates of formal, non-formal and informal including enterprise-based training programs. 4.3.2 Experienced workers (wage employed or self-employed) 4.4 Re-assessment in a unit of competency is allowed only after one month from the date of assessment. Re-assessment for a National Certificate shall be done only on the task/s that the candidate did not successfully achieve.	**I. National Assessment and Certification Arrangements** 4.1 To attain the National Qualification of Biomedical Equipment Servicing NC II, the candidate must demonstrate competence in all the units listed in Section 1. Successful candidates shall be awarded a National Certificate II signed by the TESDA Director General. 4.2 The qualification of Biomedical Equipment Servicing NC II may be attained through demonstration of competence through project-type assessment covering all required units of the qualification. 4.3 Assessment shall cover all competencies, with basic and common integrated or assessed concurrently with the core units of competency. 4.4 The following are qualified to apply for assessment and certification: 4.4.1 Graduates or graduating students/trainees of WTR-registered program, graduates of NTR-registered programs or formal/non-formal/informal including enterprise-based training related to Biomedical Equipment Servicing. A certificate of training or certification must be provided as proof.

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	Amendments
4.5 A candidate who fails the assessment for two (2) consecutive times will be required to go through a refresher course before taking another assessment. 4.6 The guidelines on assessment and certification are discussed in detail in the Procedures Manual on Assessment and Certification	4.4.2 Experienced workers (wage employed or self-employed). 4.5 Existing National Certificate (NC) in Biomedical Equipment Servicing NC II shall be in effect until the said NCs have expired. The old NCs, expired or not, may be converted under the amended/updated TR provided that the NC holders present evidence that they are currently or have been employed as Biomedical Equipment Technician in the healthcare service industry for the past five (5) years continuously. A Certificate of Employment with Job Description on Basic Biomedical Equipment must be provided as proof. 4.7 The conduct of assessment and issuance of certificates shall follow the operation procedure and implementing guidelines developed for the purpose. 4.8 The guidelines on assessment and certification are discussed in detail in the "Operating Procedures on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Competency Assessment and Certification System (PTCACS)". **II. COMPETENCY ASSESSMENT REQUISITE** 4.1 **Self-Assessment Guide.** The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can: a. Identify the candidate's skills and knowledge b. Highlight gaps in candidate's skills and knowledge c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior to assessment

Existing Promulgated Training Regulations (Board Resolution No. 2006-09)	**Amendments**
	4.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to manage the assessment activities of candidates for National Certification. 4.3 **Accredited Competency Assessor.** Only Competency Assessor accredited by TESDA is authorized to assess the competencies of candidates for National Certification.

ANNEX B

AMENDMENTS ON TRAINING REGULATIONS FOR INSTRUMENTATION AND CONTROL SERVICING NC II

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Qualification Title	
Instrumentation and Control Servicing NC II	Instrumentation and Control Servicing NC II
Job Title	
• Instrumentation and Control Technician 2	• Instrumentation & Control Technician 1 • Instrumentation and Automation Technician (Level 1) • Instrumentation or Instrument Technician 1 • Instrumentation Specialist 1 • Equipment & Instrumentation Technician 1 • Instrumentation and Automation Installer • Instrumentation and Automation Fitter • Instrument or Instrumentation Fitter • Instrument or Instrumentation Installer
SECTION 1 – Definition of the Qualification	
The **INSTRUMENTATION AND CONTROL SERVICING NC II** Qualification consists of competencies that a person must achieve to enable him/her to install, calibrate, and configure various instrumentation & control devices and systems, as well as microcomputer hardware, operating systems, common user applications, network systems, and various common peripherals in a manufacturing or processing environment.	The **Instrumentation and Control Servicing NC II** Qualification consists of competencies that must be possessed to enable a person to install and configure instrumentation and control devices.
SECTION 2: Competency Standards	
Basic Competencies • Participate in workplace communication • Work in a team environment • Practice career professionalism • Practice occupational health and safety procedures	**Basic Competencies** • Participate in workplace communication • Work in a team environment • Solve/address general workplace problems • Develop career and life decisions • Contribute to workplace innovation • Present relevant information • Practice occupational safety and health policies and procedure • Exercise efficient and effective sustainable practices in the workplace • Practice entrepreneurial skills in the workplace

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Common Competencies • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits	**Common Competencies** • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits • Test Electronic Components
Core Competencies • Install Instrumentation and Control Devices • Calibrate Instrumentation and Control Devices • Configure Instrumentation and Control Devices	**Core Competencies** • Install Instrumentation and Control Devices • Configure Instrumentation and Control Devices
SECTION 3: Training Arrangements	
3.1 Curriculum Design: Nominal Training Hours: 18 Hours (Basic Competencies) 60 Hours (Common Competencies) 160 Hours (Core Competencies) --- **238 Hours - TOTAL**	Nominal Training Hours: 37 Hours (Basic Competencies) 64 Hours (Common Competencies) 120 Hours (Core Competencies) --- **221 Hours – Total** 112 Hours – Supervised Industry Learning (SIL)
Course Description	
This course is designed to develop & enhance the knowledge, skills, & attitudes of an instrumentation and control technician in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as installing, calibrating & configuring instrumentation & control devices).	This course is designed to develop & enhance the knowledge, skills, attitudes & values of an instrumentation and automation technician, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as installing and configuring instrumentation and control devices. This includes classroom learning activities and practical work in actual work site or simulation area. Upon completion of the course, the learners are expected to demonstrate the above-mentioned competencies to be employed. To obtain this, all units prescribed for this qualification must be achieved.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.2 Training Delivery The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. • The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is individualized and self-paced; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Approved training programs are nationally accredited. The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer only facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.	*AS PER NEW TR FRAMEWORK (TESDA BR 2014-04)* 1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. a. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards) b. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. d. Assessment is based in the collection of evidence of the performance of work to the industry required standards; e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. f. Training program allows for recognition of prior learning (RPL) or current competencies; g. Training completion is based on satisfactory performance of all specified competencies. 2. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:
• Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire a specific competencies prescribed in the training regulations. • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructors are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.	**2.1 Institution- Based:** • Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components. **2.2 Enterprise-Based:** • Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	2.3 Community-Based: • Community-Based Training – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).
3.3 Trainee Entry Requirements	

The trainees who wish to enter the course should possess the following requirements: • Can communicate orally and in writing • Can perform basic mathematical computations • Can recognize abstract and 3-dimensional figures • Must be mentally fit to undergo training • With good moral character	Trainees or students who wish to enter the course should possess the following requirements: • Must have completed at least 10 yrs. basic education or an alternative learning systems (ALS) certificate of achievement with grade 10 equivalent holder • Can communicate orally and in writing • Can perform basic mathematical computations This list does not include specific institutional requirements such as written entrance exam, and other that may be required of the trainees by the school or training center delivering TVET program.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

3.4 List of Tools, Equipment and Materials

Recommended list of tools, equipment and materials for the training of 25 trainees for the Instrumentation and Control Servicing NC II.

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	Long-nosed pliers	25 pcs	Multimeters	1 spool	Solder lead
25 pcs	Diagonal cutters	5 pcs	Signal simulators	1 spool	Shielded instrumentation cable
25 pcs	Standard screwdrivers	5 pcs	Multifunction Calibrators	1 lot	Terminal lugs
25 pcs	Phillips screwdrivers	5 pcs	Pressure transmitters	1 lot	Terminal strips/blocks
25 pcs	Electrical pliers	5 pcs	Pressure gages	25 pcs	Cotton gloves
25 pcs	Soldering iron	1 pc.	Air compressor	1 lot	Copper tubing
25 pcs	Adjustable wrench	5 pcs	Thermocouple sensors	1 lot	Plastic tubing
5 pcs	Wire stripper	5 pcs	RTD sensors	1 lot	Compression fittings
5 pcs	Crimping tool	5 pcs	Temperature transmitters, Universal input	25 rolls	Electrical tape
5 sets	Allen wrench	5 pcs	Loop power supplies	25 rolls	Teflon sealant tape
5 sets	Jeweller's screwdrivers	5 pcs	Instrument stanchions	1 lot	Cable ties
5 sets	Combination wrench, metric	5 pcs	Process indicators	1 lot	Calibration stickers
5 sets	Combination wrench, English	5 pcs	Process controllers		
		1 pc.	Control valve w/ positioner		
		1 pc.	I/P Converter		
		5 pcs	Desktop PC		
		1 pc.	Oscilloscope		
		5 sets	Communication equipment		
		1 pc.	Safety helmet		
		1 pc.	Safety shoes		
		1 pc.	Safety harness		
		1 pc.	Safety glasses/ goggles		
		1 pc.	Ear plugs/ear muffs		
		1 pc.	Gas mask		
		1 pc.	Face shield		

Recommended list of tools, equipment and materials for the training of 25 trainees for Instrumentation and Control Servicing NC II:

(For laboratory group exercises, each grouping shall have a maximum of 5 participants.)

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	6 in, Long-nosed Pliers	5 pcs	Portable Digital Multimeters, minimum 4-digit LCD display, minimum accuracy 1% of reading, minimum resolution 0.1 V, 0.1 mA, 0.1 A, 0.1 Ohm	200 g	Rosin-core Solder spool, 60/40 or 63/37 grade, lead alloy type, 0.04" or 1 mm diameter
25 pcs	6 in., Diagonal Cutters	5 pcs	Multiple-Signal V-mV-mA simulator, 0 to 10 Vdc, 0 to 100 mV dc, 0 to 30 mA dc	150 meters	Shielded instrumentation cable, 1-triad, twisted, minimum 7 strands, AWG 18, foil-shield
25 pcs	4 to 6 in., Slot-head Screw-drivers	5 pcs	Variable Decade Resistance Simulator, 0 to 1,000 Ohms	150 meters	TF wire, AWG 18, Red
25 pcs	4 to 6 in., Phillips-head Screwdrivers	5 pcs	Mechanical Pressure Gages, 100mm size, 0 to 30 PSIG, minimum 5%FS accuracy, brass or copper element,1/4"NPTM bottom connection	150 meters	TF wire, AWG 18, Black
25 pcs	6 in., Lineman's Electrical Pliers	1 unit	Gage Pressure Transmitter, 30 PSIG span, minimum 0.5%FS accuracy, wetted materials for clean medium, HART & 4-20 mA 2-wire output, 1/2" NPTM direct connection, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	150 meters	TF wire, AWG 18, White

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 pcs	25 or 40W, 220Vac, Soldering Iron	1 unit	Temperature Transmitter, universal input type, minimum 0.5%FS accuracy, HART & 4-20 mA 2-wire output, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	25 rolls	Plastic Electrical Tape, Black, 3" diameter rolls
5 pcs	6 in., Adjustable Wrench	5 pcs	Thermocouple sensors, type-T, J, or K, with protecting tube,1/4" OD x 6"L, SS304 material,1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, ring-type, AWG 18
5 pcs	8 in., Adjustable Wrench	5 pcs	RTD sensors, type-PT100, 3-wire, with protecting tube,1/4" OD x 6"L, SS304 material,1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, spade-type, AWG 18
5 pcs	6 in., Wire Stripper, manual or automatic	5 pcs	Instrument 2" pipe stanchions, table-mounted, 12" or 300mm height	50 pcs	Rail-mounted terminal blocks, max AWG 14 wire
5 pcs	Ratchet Crimping Tool for ferrules	5 pcs	Loop power supplies, 220Vac input, 24 Vdc output at 1 A, short-circuit protected, rail-mounted	5 pcs	Rail-mounted fused terminal blocks, max AWG 14 wire
5 sets	Allen Wrench or hex key, 6-piece set, metric	1 unit	Digital Process indicators, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, 1-alarm output, auto-volt AC supply	10 pcs	Rail-mounted terminal block end locks
5 sets	6 in., Combination Wrench, 5-piece set, metric	1 pc.	Analog I/P Converter, 4-20 mA/3-15 psig, with calibration adjustments	1 roll	Plastic pneumatic instrumentation tubing, 6 mm OD size, 25 m per roll

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	Allen Wrench or hex key 6-piece set, English	1 unit	Digital Process Controller, Single-loop, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, configurable outputs (mA and ON/OFF), 1-alarm output, auto-volt AC supply	5 pcs	Aluminum DIN rail, 1 meter length
5 sets	6 in., Combinatio n Wrench, 5-piece set, English	1 unit.	Instrument Air compressor, 100 PSIG max output, silent-type, complete with filter regulator, desiccant dryer, and coalescing filter	25 pcs	Plastic push-in pneumatic fitting, straight connector, 6 mm tube size
5 sets	Jeweller's Screwdrive rs, 6-piece set	1 pair	Personal Hand-held 2-way radios, FRS band, 1 km min range, rechargeable battery	2 lengt hs	Straight Copper instrumentati on tubing, 1/4" OD size, 20 ft length (6 m equivalent)
5 sets	Electric Power Drill, 1/4" or 6mm maximum chuck size, 220 Vac	5 sets	Laptop PC, 12" minimum display, I3 minimum processor, 4GB minimum RAM, 256GB minimum storage, minimum MS Windows 7, & with MS Office (or equivalent Desktop PC)	25 pcs	Metal (Brass or Stainless Steel) compression fittings, straight connector, double-ferrule, 1/4' OD tube size or 6mm, ¼"NPT thread
5 sets	High-speed metal drill bits, 1/32" to 1/4" English sizes	5 sets.	Safety helmet with chin strap	5 pcs	Plastic cable glands, ½" or 12mm size
5 sets	High-speed metal drill bits, 1mm to 6 mm metric sizes	5 pairs	Safety shoes, any size	25 rolls	Teflon tape, pipe thread sealant, 1/2" wide, 520 in. long,
5 sets	High-speed masonry drill bits, 1/8" to 1/4", sizes	1 set	Full-body Safety harness	100 pcs	Plastic cable ties, 150mm long

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	Adjustable Hacksaw Frame, with two blades, 10 in. x 14-tpi and 10 in. x 32-tpi	5 pairs	Safety glasses	25 pcs	Cotton Gloves
5 sets	8 in., Claw Hammer	5 sets	Safety ear plugs with cord and case	1 roll	Safety caution tape
5 sets	Manual Tubing Cutter, screw-feed, 3 to 25mm sizes	1 set	Industrial dust, half-face gas mask respirator, with activated carbon filter	1 set	Dry Chemical Fire Extinguisher, Type ABC, 5 lbs
5 sets	Manual Tube Bender, 1/8" to 1/2" sizes	1 set	Safety Vest with reflectors, skeleton type, yellow		

3.5 Training Facilities

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	1 x 2	2	1	2
Total				**122**
Facilities / Equipment / Circulation**				36
Total Area				**158**

** *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area (1.25 sq. m / person)	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	2 x 2.5	5	2	10
Total				**130**
Facilities / Equipment / Circulation*				39
Total Area				**169**

* *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.6 Trainer's Qualifications	
Instrumentation & Control Technician NC II **Trainer's Qualification TQ II** • Must be a holder of Instrumentation & Control Certificate NCII or NCIII or equivalent qualification • Must have completed a Trainor's Training course or equivalent years of experience • * Must have at least 2-years relevant industry experience. • Must be physically & mentally fit.) * Optional. Only when required by the hiring institution.	**Instrumentation & Control Technician NC II** • Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Instrumentation and Control Servicing NCII or higher; • Must have at least 2-years relevant industry experience; • Trainors with at least 2 years teaching experience related to instrumentation and control, *but for without industry working experience,* must undergo industry immersion in instrumentation and control, for a minimum period of **200 hours**, not including student OJT hours.
3.7 Institutional Assessment	
Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency. The result of the institutional assessment may be considered as evidence for the assessment for national certification.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
SECTION 4 Assessment and Certification Arrangements	
4.1 To attain the National Qualification of Instrumentation and Control Servicing NC II, the candidate must demonstrate competence in all the units of competency listed in Section 1. The successful candidate shall be awarded a National Certificate signed by the TESDA Director General. 4.2 The qualification of Instrumentation and Control Servicing NC II may be attained through: 4.2.1 Accumulation of Certificates of Competency (COCs) in all the following units of competencies: ▪ Install Instrumentation and Control Devices ▪ Calibrate Instrumentation and Control Devices ▪ Configure Instrumentation and Control Devices Successful candidates shall be awarded a **Certificate of Competency (COC)** in each of the core units. 4.2.2 Demonstration of competence in a project-type assessment covering all the units required in the qualification. 4.3 Accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate. 4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 4.5 The following are qualified to apply for assessment and certification: 4. 5.1 Graduates of formal, non-formal and informal institutions including enterprise-based training programs 4.5.2 Experienced workers (wage employed or self-employed) 4.6 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".	*Competency Assessment* is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards. The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to a full qualification or employable unit(s) of competency in partial fulfillment of the requirements of the national qualification. **4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS** 4.1.1 To attain the National Qualification of Instrumentation and Control Servicing NC II, the candidate must demonstrate in all the units of competency listed in Section 1. Successful candidates shall be awarded a National Certificate II signed by the TESDA Director General. 4.1.2 The qualification of Instrumentation and Control Servicing NC II may be attained through demonstration of competence through project-type assessment covering all the units required in the qualification. 4.1.3 Assessment shall cover all competencies, with basic and common units integrated or assessed concurrently with the core units of competency. 4.1.4 The following are qualified to apply for assessment and certification: • Graduates of formal, non-formal and informal institutions including enterprise-based training programs • Experienced Workers (wage employed or self-employed) 4.1.5 Existing National Certificate (NC) and Certificate of Competency (COC) of individuals in Instrumentation and Control Servicing NC II will still be in effect until such time that such NC and COC will have expired. Individuals are advised to take the assessment for this amended TR on or before the expiration of such certificates.
Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	**Amendments**

4.1.6 The conduct of assessment and issuance of certificates shall follow the operation procedure and implementing guidelines developed for the purpose.

4.1.7 The guidelines on assessment and certification are discussed in details in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Competency Assessment and Certification System (PTCACS)".

4.2 COMPETENCY ASSESSMENT REQUISITE

4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment.

This document can:

a. Identify the candidate's skills and Knowledge
b. Highlight gaps in candidate's skills and knowledge
c. Provide critical guidance to the assessor and candidate on the evidence that need to be presented
d. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior `

4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to manage the assessment activities of candidates for National Certification.

4.2.3 **Accredited Competency Assessor**. Only competency assessor accredited by TESDA is authorized to assess the competencies of candidates for National Certification.

ANNEX C

AMENDMENTS ON TRAINING REGULATIONS FOR INSTRUMENTATION AND CONTROL SERVICING NC III

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Qualification Title	
Instrumentation and Control Servicing NC III	Instrumentation and Control Servicing NC III
Job Title	
A person who has achieved this Qualification is competent to be an: • Instrumentation and Control Technician 3 • Process Automation Technician	• Instrumentation & Control Technician 2 • Instrumentation and Automation Technician (Level 2) • Instrumentation or Instrument Technician 2 • Instrumentation Specialist 2 • Equipment & Instrumentation Technician 2 • Instrumentation Maintenance Technician Instrument Calibration Technician
SECTION 1 – Definition of the Qualification	
The **INSTRUMENTATION AND CONTROL SERVICING NC III** Qualification consists of competencies that a person must achieve to enable him/her to loop check, maintain, and repair various instrumentation & control devices and systems, as well as microcomputer hardware, operating systems, common user applications, network systems, and various common peripherals in a manufacturing or processing environment.	The **Instrumentation and Control Servicing NC III** Qualification consists of competencies that must be possessed to enable a person to perform calibration, maintenance, troubleshooting and repair of instrumentation and control devices.
SECTION 2: Competency Standards	
Basic Competencies • Lead workplace communication • Lead small teams • Develop and practice negotiation skills • Solve problems related to work activities • Use mathematical concepts and techniques • Use relevant technologies	**Basic Competencies** • Lead workplace communication • Lead small teams • Apply critical thinking and problem-solving techniques in the workplace • Work in a diverse environment • Propose methods of applying learning and innovation in the organization • Use information systematically • Evaluate occupational safety and health work practices • Evaluate environmental work practices • Facilitate entrepreneurial skills for micro-small-medium enterprises (MSMEs)

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Common Competencies • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits	**Common Competencies** • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits • Test Electronic Components
Core Competencies **All core units of competency in Instrumentation and Control Servicing NC II, plus** • Loop Check Instrumentation and Control Devices • Maintain and Repair Instrumentation and Control Devices	**Core Competencies** • Calibrate Instrumentation and Control Devices • Maintain, Troubleshoot & Repair Instrumentation and Control Devices
SECTION 3: Training Arrangements	
3.1 Curriculum Design: Nominal Training Hours: 36 Hours (Basic Competencies) 60 Hours (Common Competencies) 80 Hours (Core Competencies) --- **176 Hours - TOTAL**	Nominal Training Hours: 40 Hours (Basic Competencies) 64 Hours (Common Competencies) 120 Hours (Core Competencies) --- **224 Hours – Total** 112 Hours – Supervised Industry Learning (SIL)
Course Description	
This course is designed to develop & enhance the knowledge, skills, & attitudes of an Instrumentation & Control Technician, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as loop checking, maintaining and repairing Instrumentation & control devices. *The nominal duration of 176 hr covers only the basic, common and core units at Instrumentation & Control Servicing NC III. TVET providers can however, offer a longer, ladderized course covering both NC II and NC III basic, common and core units*).	This course is designed to develop & enhance the knowledge, skills, attitudes & values of an instrumentation and control technician, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as calibrating, maintaining, troubleshooting and repairing instrumentation and control devices. This includes classroom learning activities and practical work in actual work site or simulation area. To obtain this, all units prescribed for this qualification must be achieved.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.2 Training Delivery	
The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. • The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is individualized and self-paced; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Approved training programs are nationally accredited. The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer only facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.	*AS PER NEW TR FRAMEWORK (TESDA BR 2014-04)* **3.** The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. d. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards) e. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; f. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. d. Assessment is based in the collection of evidence of the performance of work to the industry required standards; e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. f. Training program allows for recognition of prior learning (RPL) or current competencies; g. Training completion is based on satisfactory performance of all specified competencies. **4.** The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:
• Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire a specific competencies prescribed in the training regulations. • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructors are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.	**2.1 Institution- Based:** • Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components. **2.2 Enterprise-Based:** • Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	2.3 Community-Based: • Community-Based Training – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).
3.3 Trainee Entry Requirements	

The trainees who wish to enter the course should possess the following requirements: • Can recognize abstract and 3-dimensional figures • Must be physically and mentally fit to undergo training • With good moral character • Must have completed training in Instrumentation & Control Servicing NC II or equivalent in experience	Trainees or students who wish to enter the course should possess the following requirements: • Must have acquired competencies in Instrumentation and Control Servicing NC II through training or work experience • Can communicate orally and in writing • Can perform basic mathematical computations

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

3.4 List of Tools, Equipment and Materials

Recommended list of tools, equipment and materials for the training of 25 trainees for the Instrumentation and Control Servicing NC III.

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	Long-nosed pliers	25 pcs	Multimeters	1 spool	Solder lead
25 pcs	Diagonal cutters	5 pcs	Signal simulators	1 spool	Shielded instrumentation cable
25 pcs	Standard screwdrivers	5 pcs	Multifunction Calibrators	1 lot	Terminal lugs
25 pcs	Phillips screwdrivers	5 pcs	Pressure transmitters	1 lot	Terminal strips/blocks
25 pcs	Electrical pliers	5 pcs	Pressure gages	25 pcs	Cotton gloves
25 pcs	Soldering iron	1 pc.	Air compressor	1 lot	Copper tubing
25 pcs	Adjustable wrench	5 pcs	Thermocouple sensors	1 lot	Plastic tubing
5 pcs	Wire stripper	5 pcs	RTD sensors	1 lot	Compression fittings
5 pcs	Crimping tool	5 pcs	Temperature transmitters, Universal input	25 rolls	Electrical tape
5 sets	Allen wrench	5 pcs	Loop power supplies	25 rolls	Teflon sealant tape
5 sets	Jeweler's screwdrivers	5 pcs	Instrument stanchions	1 lot	Cable ties
5 sets	Combination wrench, metric	5 pcs	Process indicators	1 lot	Calibration stickers
5 sets	Combination wrench, English	5 pcs	Process controllers		
		1 pc.	Control valve w/ positioner		
		1 pc.	I/P Converter		
		5 pcs	Desktop PC		
		1 pc.	Oscilloscope		
		5 sets	Communication equipment		
		1 pc.	Safety helmet		
		1 pc.	Safety shoes		
		1 pc.	Safety harness		
		1 pc.	Safety glasses/ goggles		
		1 pc.	Ear plugs/ear muffs		
		1 pc.	Gas mask		
		1 pc.	Face shield		

Recommended list of tools, equipment and materials for the training of 25 trainees for Instrumentation and Control Servicing NC III:

(For laboratory group exercises, each grouping shall have a maximum of 5 participants.)

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	6 in, Long-nosed Pliers	5 pcs	Portable Digital Multimeters, minimum 4-digit LCD display, minimum accuracy 1% of reading, minimum resolution 0.1 V, 0.1 mA, 0.1 A, 0.1 Ohm	200 g	Rosin-core Solder spool, 60/40 or 63/37 grade, lead alloy type, 0.04" or 1 mm diameter
25 pcs	6 in., Diagonal Cutters	5 pcs	Multiple-Signal V-mV-mA simulator, 0 to 10 Vdc, 0 to 100 mV dc, 0 to 30 mA dc	150 meters	Shielded instrumentation cable, 1-triad, twisted, minimum 7 strands, AWG 18, foil-shield
25 pcs	6 in., Slot-head Screw-drivers	5 pcs	Variable Decade Resistance Simulator, 0 to 1,000 Ohms	150 meters	TF wire, AWG 18, Red
25 pcs	6 in., Phillips-head Screw-drivers	5 pcs	Mechanical Pressure Gages, 100mm size, 0 to 30 PSIG, minimum 5%FS accuracy, brass or copper element, 1/4"NPTM bottom connection	150 meters	TF wire, AWG 18, Black
25 pcs	6 in., Lineman's Electrical Pliers	1 unit	Gage Pressure Transmitter, 30 PSIG span, minimum 0.5% FS accuracy, wetted materials for clean medium, HART & 4-20 mA 2-wire output, 1/2" NPTM direct connection, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	150 meters	TF wire, AWG 18, White

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 pcs	25 or 40W, 220Vac, Soldering Iron	1 unit	Temperature Transmitter, universal input type, minimum 0.5% FS accuracy, HART & 4-20 mA 2-wire output, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	25 rolls	Plastic Electrical Tape, Black, 3" diameter rolls
5 pcs	6 in., Adjustable Wrench	5 pcs	Thermocouple sensors, type-T, J, or K, with protecting tube,1/4" OD x 6"L, SS304 material, 1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, ring-type, AWG 18
5 pcs	8 in., Adjustable Wrench	5 pcs	RTD sensors, type-PT100, 3-wire, with protecting tube,1/4" OD x 6"L, SS304 material, 1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, spade-type, AWG 18
5 pcs	6 in., Wire Stripper, manual or automatic	5 pcs	Instrument 2" pipe stanchions, table-mounted, 12" or 300mm height	50 pcs	Rail-mounted terminal blocks, max AWG 14 wire
5 pcs	Ratchet Crimping Tool for ferrules	5 pcs	Loop power supplies, 220Vac input, 24 Vdc output at 1 A, short-circuit protected, rail-mounted	5 pcs	Rail-mounted fused terminal blocks, max AWG 14 wire
5 sets	Allen Wrench or hex key, 6-piece set, metric	1 unit	Digital Process indicators, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, 1-alarm output, auto-volt AC supply	10 pcs	Rail-mounted terminal block end locks
5 sets	6 in., Combination Wrench, 5-piece set, metric	1 pc.	Analog I/P Converter, 4-20 mA/3-15 psig, with calibration adjustments	1 roll	Plastic pneumatic instrumentation tubing, 6 mm OD size, 25 m per roll

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	Allen Wrench or hex key 6-piece set, English	1 unit	Digital Process Controller, Single-loop, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, configurable outputs (mA and ON/OFF), 1-alarm output, auto-volt AC supply	5 pcs	Aluminum DIN rail, 1 meter length
5 sets	6 in., Combination Wrench, 5-piece set, English	1 unit.	Instrument Air compressor, 100 PSIG max output, silent-type, complete with filter regulator, desiccant dryer, and coalescing filter	25 pcs	Plastic push-in pneumatic fitting, straight connector, 6 mm tube size
5 sets	Jeweler's Screw-drivers, 6-piece set	1 pair	Personal Hand-held 2-way radios, FRS band, 1 km min range, rechargeable battery	2 lengths	Straight Copper instrumentation tubing, 1/4" OD size, 20 ft length (6 m equivalent)
5 sets	Electric Power Drill, 1/4" or 6mm maximum chuck size, 220 Vac	5 sets	Laptop PC, 12" minimum display, I3 minimum processor, 4GB minimum RAM, 256GB minimum storage, minimum MS Windows 7, & with MS Office (or equivalent Desktop PC)	25 pcs	Metal (Brass or Stainless Steel) compression fittings, straight connector, double-ferrule, 1/4' OD tube size or 6mm, ¼"NPT thread
5 sets	High-speed metal drill bits, 1/32" to 1/4" English sizes	5 units	Multiple-Signal V-mV-mA-ohms Calibrator, 0 to 10 Vdc, 0 to 100 mV dc, 0 to 30 mA dc, 0 to 1000 ohms, minimum 0.25%FS accuracy	5 pcs	Plastic cable glands, ½" or 12mm size
5 sets	High-speed metal drill bits, 1mm to 6 mm metric sizes	5 units	Mechanical Pressure Test Gages, 100mm size minimum, 0 to 30 PSIG, minimum 0.25%FS accuracy, brass or copper element,1/4"NPTM bottom connection	25 rolls	Teflon tape, pipe thread sealant, 1/2" wide, 520 in. long,
5 sets	High-speed masonry drill bits, 1/8" to 1/4", sizes	5 units	Pressure Hand Pump, adjustable pressure, 0 to 30 psig minimum output generation	100 pcs	Plastic cable ties, 150mm long

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	Adjustable Hacksaw Frame, with two blades, 10 in. x 14-tpi and 10 in. x 32-tpi	5 units	Precision Air Pressure Regulator, 0 to 30 psig	25 pcs	Cotton Gloves
5 sets	8 in., Claw Hammer	1 unit	Electronic or Mechanical Pressure Calibrator capable for 0 to 500 inches WC, minimum 0.25% FS accuracy	1 roll	Safety caution tape
5 sets	Manual Tubing Cutter, screw-feed, 3 to 25mm sizes	5 sets.	Safety helmet with chin strap		
5 sets	Manual Tube Bender, 1/8" to 1/2" sizes	1 set	Simulated Calibration Bath to attain 90 deg C minimum, consisting of 1-insulated container for 1 liter water minimum capacity , 1- digital temperature controller, 1-Thermocouple or RTD temperature sensor, 1- electric contactor, 1- electric heater, and 1-motorized stirrer		
		5 pairs	Safety shoes, any size		
		1 set	Full-body Safety harness		
		5 pairs	Safety glasses		
		5 sets	Safety ear plugs with cord and case		
		1 set	Industrial dust, half-face gas mask respirator, with activated carbon filter		
		1 set	Safety Vest with reflectors, skeleton type, yellow		

3.5 Training Facilities

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	1 x 2	2	1	2
Total				**122**
Facilities / Equipment / Circulation**				36
Total Area				**158**

** *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area (1.25 sq. m / person)	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	2 x 2.5	5	2	10
Total				**130**
Facilities / Equipment / Circulation*				39
Total Area				**169**

* *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

3.6 Trainer's Qualifications

Instrumentation & Control Technician NC III
Trainer's Qualification TQ II

- Must be a holder of Instrumentation & Control Certificate NC III or NC IV or equivalent qualification
- Must have completed a Trainor's Training course or equivalent years of experience
- * Must have at least 2-years relevant industry experience.
- Must be physically & mentally fit.

* Optional. Only when required by the hiring institution.

Instrumentation & Control Technician NC III

- Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Instrumentation and Control Servicing NCIII or higher;
- Must have at least 2-years relevant industry experience;
- Trainors with at least 2 years teaching experience related to instrumentation and automation, *but for without industry working experience,* must undergo industry immersion in instrumentation and control, for a minimum period of **200 hours**, not including student OJT hours.

3.7 Institutional Assessment

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

The result of the institutional assessment may be considered as evidence for the assessment for national certification.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
SECTION 4 Assessment and Certification Arrangements	
4.1 To attain the National Qualification of Instrumentation and Control Servicing NC III, the candidate must demonstrate competence in all the units of competency listed in Section 1. The successful candidate shall be awarded a National Certificate signed by the TESDA Director General. 4.2 The qualification of Instrumentation and Control Servicing NC III may be attained through: 4.2.1 Accumulation of Certificates of Competency (COCs) in all the following units of competencies: ▪ Install Instrumentation and Control Devices ▪ Calibrate Instrumentation and Control Devices ▪ Configure Instrumentation and Control Devices ▪ Loop check Instrumentation and Control Devices ▪ Maintain and repair Instrumentation and Control Devices Successful candidates shall be awarded a **Certificate of Competency (COC)** in each of the core units. 4.3 Accumulation and submission of all COCs acquired for the relevant units of competency comprising a qualification, an individual shall be issued the corresponding National Certificate. 4.4 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 4.5 The following are qualified to apply for assessment and certification: 4. 5.1 Graduates of formal, non-formal and informal institutions including enterprise-based training programs 4.5.2 Experienced workers (wage employed or self-employed) 4.6 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".	*Competency Assessment* is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards. The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to a full qualification or employable unit(s) of competency in partial fulfillment of the requirements of the national qualification. **4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS** 4.1.4 To attain the National Qualification of Instrumentation and Control Servicing NC III, the candidate must demonstrate in all the units listed in Section 1. Successful candidates shall be awarded a National Certificate III signed by the TESDA Director General. 4.1.5 The qualification of Instrumentation and Automation Control NC III may be attained through demonstration of competence through project-type assessment covering all the units required in the qualification. 4.1.6 Assessment shall cover all competencies, with basic and common units integrated or assessed concurrently with the core units of competency. 4.1.4 The following are qualified to apply for assessment and certification: a. Graduates of formal, non-formal and informal institutions including enterprise-based training programs b. Experienced Workers (wage employed or self-employed) 4.1.5 Existing National Certificate (NC) and Certificate of Competency (COC) of individuals in Instrumentation and Control Servicing NC III will still be in effect until such time that such NC and COC will have expired. Individuals are advised to take the assessment for this amended TR on or before the expiration of such certificates. 4.1.6 The conduct of assessment and issuance of certificates shall follow the operation procedure and implementing guidelines developed for the purpose. 4.1.7 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Competency Assessment and Certification System (PTCACS)".

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	4.2 COMPETENCY ASSESSMENT REQUISITE 4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can: e. Identify the candidate's skills and Knowledge f. Highlight gaps in candidate's skills and knowledge g. Provide critical guidance to the assessor and candidate on the evidence that need to be presented h. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior ` 4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to manage the assessment activities of candidates for National Certification. 4.2.3 **Accredited Competency Assessor**. Only competency assessor accredited by TESDA is authorized to assess the competencies of candidates for National Certification.

ANNEX D

AMENDMENTS ON TRAINING REGULATIONS FOR INSTRUMENTATION AND CONTROL SERVICING NC IV

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Qualification Title	
Instrumentation and Control Servicing NC IV	Instrumentation and Control Servicing NC IV
Job Title	
A person who has achieved this Qualification is competent to be an: • Instrumentation and Control Technician 4 • Process Automation Technician	• Instrumentation & Control Technician 3 • Instrumentation and Automation Technician (Level 3) • Instrumentation or Instrument Technician 3 • Instrumentation Specialist 3 • Equipment & Instrumentation Technician 3 • Industrial Automation Technician 3 • Instrumentation Supervisor • Instrumentation Leadman • Senior Instrumentation or Automation Technician • Instrument Commissioning Technician
SECTION 1 – Definition of the Qualification	
The **INSTRUMENTATION AND CONTROL SERVICING NC IV** Qualification consists of competencies that a person must achieve to enable him/her to startup, commission, diagnose and troubleshoot various instrumentation & control devices and systems, as well as microcomputer hardware, operating systems, common user applications, network systems, and various common peripherals in a manufacturing or processing environment.	The **Instrumentation and Control Servicing NC IV** Qualification consists of competencies that must be possessed to enable a person to loop check instrumentation and control devices and to commission and start-up instrumentation and control loops and systems.
SECTION 2: Competency Standards	
Basic Competencies • Utilize specialized communication skills • Develop teams and individuals • Apply problem solving techniques in the workplace • Collect, analyze and organize information • Plan and organize work • Promote environmental protection	**Basic Competencies** • Utilize specialized communication skills • Develop and lead teams • Perform higher order thinking processes and apply techniques in the workplace • Contribute to the practice of social justice in the workplace • Manage innovative work instructions • Manage and evaluate usage of information • Lead in improvement of Occupational Safety and Health (OSH) programs, policies and procedures • Lead towards improvement of environment work programs, policies and procedures • Sustain entrepreneurial skills

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Common Competencies • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits	**Common Competencies** • Use Hand Tools • Perform Mensuration and Calculation • Prepare and Interpret Technical Drawing • Apply Quality Standards • Perform Computer Operations • Terminate and Connect Electrical Wiring and Electronic Circuits • Test Electronic Components
Core Competencies **All core units of competency in Instrumentation and Control Servicing NC II, plus** • Start-up and Commissioning Instrumentation & Control Systems • Diagnose and Troubleshoot Instrumentation & Control Systems	**Core Competencies** • Loop Check Instrumentation and Control Devices • Commission and Start-up Instrumentation & Control Loops and Systems
SECTION 3: Training Arrangements	
3.1 Curriculum Design: Nominal Training Hours: 30 Hours (Basic Competencies) 60 Hours (Common Competencies) 80 Hours (Core Competencies) --- **170 Hours - TOTAL**	Nominal Training Hours: 47 Hours (Basic Competencies) 64 Hours (Common Competencies) 132 Hours (Core Competencies) --- **243 Hours – Total** 120 Hours – Supervised Industry Learning (SIL)
Course Description	
This course is designed to develop & enhance the knowledge, skills, & attitudes of an Instrumentation & Control Technician, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as start-up & commissioning Instrumentation & Control devices, and diagnosing & troubleshooting Instrumentation & control systems. *The nominal duration of 170 hr covers only the basic, common and core units at Instrumentation & Control Servicing NC IV. TVET providers can however, offer a longer, ladderized course covering Instrumentation and Control Servicing NC II, NC III and NC IV basic, common and core units.*	This course is designed to develop & enhance the knowledge, skills, attitudes & values of an instrumentation and automation technician, in accordance with industry standards. It covers the basic & common competencies in addition to the core competencies such as loop checking, commissioning and starting up of instrumentation and control devices, loops, & systems. This includes classroom learning activities and practical work in actual work site or simulation area. To obtain this, all units prescribed for this qualification must be achieved.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.2 Training Delivery	
The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. • The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is individualized and self-paced; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Approved training programs are nationally accredited. The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer only facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners.	*AS PER NEW TR FRAMEWORK (TESDA BR 2014-04)* **5.** The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. g. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards) h. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; i. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. d. Assessment is based in the collection of evidence of the performance of work to the industry required standards; e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. f. Training program allows for recognition of prior learning (RPL) or current competencies; g. Training completion is based on satisfactory performance of all specified competencies. **6.** The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs:
• Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire a specific competencies prescribed in the training regulations. • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructors are not in the same place. Distance learning may employ correspondence study, or audio, video or computer technologies.	**2.1 Institution- Based:** • Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • The traditional classroom-based or in-center instruction may be enhanced through use of learner-centered methods as well as laboratory or field-work components. **2.2 Enterprise-Based:** • Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	2.3 Community-Based: • Community-Based Training – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).
3.3 Trainee Entry Requirements	

The trainees who wish to enter the course should possess the following requirements: • Must have completed training in Instrumentation & Control Servicing NC III or equivalent in experience • Must be physically and mentally fit to undergo training • With good moral character	Trainees or students who wish to enter the course should possess the following requirements: • Must have acquired competencies in Instrumentation and Control Servicing NC III through training or work experience • Can communicate orally and in writing • Can perform basic mathematical computations This list does not include specific institutional requirements such as educational attainment, appropriate work experience, and others that may be required of the trainees by the school or training center delivering the TVET program.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

3.4 List of Tools, Equipment and Materials

Recommended list of tools, equipment and materials for the training of 25 trainees for the Instrumentation and Control Servicing NC IV.

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	Long-nosed pliers	25 pcs	Multimeters	1 spool	Solder lead
25 pcs	Diagonal cutters	5 pcs	Signal simulators	1 spool	Shielded instrumentation cable
25 pcs	Standard screwdrivers	5 pcs	Multifunction Calibrators	1 lot	Terminal lugs
25 pcs	Phillips screwdrivers	5 pcs	Pressure transmitters	1 lot	Terminal strips/blocks
25 pcs	Electrical pliers	5 pcs	Pressure gages	25 pcs	Cotton gloves
25 pcs	Soldering iron	1 pc.	Air compressor	1 lot	Copper tubing
25 pcs	Adjustable wrench	5 pcs	Thermocouple sensors	1 lot	Plastic tubing
5 pcs	Wire stripper	5 pcs	RTD sensors	1 lot	Compression fittings
5 pcs	Crimping tool	5 pcs	Temperature transmitters, Universal input	25 rolls	Electrical tape
5 sets	Allen wrench	5 pcs	Loop power supplies	25 rolls	Teflon sealant tape
5 sets	Jeweler's screwdrivers	5 pcs	Instrument stanchions	1 lot	Cable ties
5 sets	Combination wrench, metric	5 pcs	Process indicators	1 lot	Calibration stickers
5 sets	Combination wrench, English	5 pcs	Process controllers		
		1 pc.	Control valve w/ positioner		
		1 pc.	I/P Converter		
		5 pcs	Desktop PC		
		1 pc.	Oscilloscope		
		5 sets	Communication equipment		
		1 pc.	Safety helmet		
		1 pc.	Safety shoes		
		1 pc.	Safety harness		
		1 pc.	Safety glasses/ goggles		
		1 pc.	Ear plugs/ear muffs		
		1 pc.	Gas mask		
		1 pc.	Face shield		

Recommended list of tools, equipment and materials for the training of 25 trainees for Instrumentation and Control Servicing NC IV:

(For laboratory group exercises, each grouping shall have a maximum of 5 trainees.)

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs	6 in, Long-nosed Pliers	5 pcs	Portable Digital Multimeters, minimum 4-digit LCD display, minimum accuracy 1% of reading, minimum resolution 0.1 V, 0.1 mA, 0.1 A, 0.1 Ohm	200 g	Rosin-core Solder spool, 60/40 or 63/37 grade, lead alloy type, 0.04" or 1 mm diameter
25 pcs	6 in., Diagonal Cutters	5 pcs	Multiple-Signal V-mV-mA simulator, 0 to 10 Vdc, 0 to 100 mV dc, 0 to 30 mA dc	150 meters	Shielded instrumentation cable, 1-triad, twisted, minimum 7 strands, AWG 18, foil-shield
25 pcs	6 in., Slot-head Screw-drivers	5 pcs	Variable Decade Resistance Simulator, 0 to 1,000 Ohms	150 meters	TF wire, AWG 18, Red
25 pcs	6 in., Phillips-head Screw-drivers	5 pcs	Mechanical Pressure Gages, 100mm size, 0 to 30 PSIG, minimum 5%FS accuracy, brass or copper element, 1/4"NPTM bottom connection	150 meters	TF wire, AWG 18, Black
25 pcs	6 in., Lineman's Electrical Pliers	1 unit	Gage Pressure Transmitter, 30 PSIG span, minimum 0.5% FS accuracy, wetted materials for clean medium, HART & 4-20 mA 2-wire output, 1/2" NPTM direct connection, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	150 meters	TF wire, AWG 18, White

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 pcs	25 or 40W, 220Vac, Soldering Iron	1 unit	Temperature Transmitter, universal input type, minimum 0.5% FS accuracy, HART & 4-20 mA 2-wire output, with LCD display for transmitter configuration & calibration adjustments, standard weatherproof housing, with mounting kit	25 rolls	Plastic Electrical Tape, Black, 3" diameter rolls
5 pcs	6 in., Adjustable Wrench	5 pcs	Thermocouple sensors, type-T, J, or K, with protecting tube,1/4" OD x 6"L, SS304 material, 1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, ring-type, AWG 18
5 pcs	8 in., Adjustable Wrench	5 pcs	RTD sensors, type-PT100, 3-wire, with protecting tube,1/4" OD x 6"L, SS304 material, 1/4"NPT connection, small head.	100 pcs	Insulated terminal lugs, spade-type, AWG 18
5 pcs	6 in., Wire Stripper, manual or automatic	5 pcs	Instrument 2" pipe stanchions, table-mounted, 12" or 300mm height	50 pcs	Rail-mounted terminal blocks, max AWG 14 wire
5 pcs	Ratchet Crimping Tool for ferrules	5 pcs	Loop power supplies, 220Vac input, 24 Vdc output at 1 A, short-circuit protected, rail-mounted	5 pcs	Rail-mounted fused terminal blocks, max AWG 14 wire
5 sets	Allen Wrench or hex key, 6-piece set, metric	1 unit	Digital Process indicators, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, 1-alarm output, auto-volt AC supply	10 pcs	Rail-mounted terminal block end locks
5 sets	Allen Wrench or hex key 6-piece set, English	1 unit	Digital Process Controller, Single-loop, 1/8 DIN size minimum, universal input, 0.5%FS minimum accuracy, configurable outputs (mA and ON/OFF), 1-alarm output, auto-volt AC supply	5 pcs	Aluminum DIN rail, 1 meter length
5 sets	6 in., Combination Wrench, 5-piece set, metric	1 pc.	Analog I/P Converter, 4-20 mA/3-15 psig, with calibration adjustments	1 roll	Plastic pneumatic instrumentation tubing, 6 mm OD size, 25 m per roll

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	6 in., Combination Wrench, 5-piece set, English	1 unit.	Instrument Air compressor, 100 PSIG max output, silent-type, complete with filter regulator, desiccant dryer, and coalescing filter	25 pcs	Plastic push-in pneumatic fitting, straight connector, 6 mm tube size
5 sets	Jeweler's Screw-drivers, 6-piece set	1 pair	Personal Hand-held 2-way radios, FRS band, 1 km min range, rechargeable battery	2 lengths	Straight Copper instrumentation tubing, 1/4" OD size, 20 ft length (6 m equivalent)
5 sets	Electric Power Drill, 1/4" or 6mm maximum chuck size, 220 Vac	5 sets	Laptop PC, 12" minimum display, I3 minimum processor, 4GB minimum RAM, 256GB minimum storage, minimum MS Windows 7, & with MS Office (or equivalent Desktop PC)	25 pcs	Metal (Brass or Stainless Steel) compression fittings, straight connector, double-ferrule, 1/4' OD tube size or 6mm, ¼"NPT thread
5 sets	High-speed metal drill bits, 1/32" to 1/4" English sizes	5 units	Multiple-Signal V-mV-mA-ohms Calibrator, 0 to 10 Vdc, 0 to 100 mV dc, 0 to 30 mA dc, 0 to 1000 ohms, minimum 0.25%FS accuracy	5 pcs	Plastic cable glands, ½" or 12mm size
5 sets	High-speed metal drill bits, 1mm to 6 mm metric sizes	5 units	Mechanical Pressure Test Gages, 100mm size minimum, 0 to 30 PSIG, minimum 0.25%FS accuracy, brass or copper element,1/4"NPTM bottom connection	25 rolls	Teflon tape, pipe thread sealant, 1/2" wide, 520 in. long,
5 sets	High-speed masonry drill bits, 1/8" to 1/4", sizes	5 units	Pressure Hand Pump, adjustable pressure, 0 to 30 psig minimum output generation	100 pcs	Plastic cable ties, 150mm long
5 sets	Adjustable Hacksaw Frame, with two blades, 10 in. x 14-tpi and 10 in. x 32-tpi	5 units	Precision Air Pressure Regulator, 0 to 30 psig	25 pcs	Cotton Gloves

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
5 sets	8 in., Claw Hammer	1 unit	Electronic or Mechanical Pressure Calibrator capable for 0 to 500 inches WC, minimum 0.25% FS accuracy	1 roll	Safety caution tape
5 sets	Manual Tubing Cutter, screw-feed, 3 to 25mm sizes	5 sets.	Safety helmet with chin strap		
5 sets	Manual Tube Bender, 1/8" to 1/2" sizes	5 pairs	Safety shoes, any size		
		1 set	Full-body Safety harness		
		5 pairs	Safety glasses		
		5 sets	Safety ear plugs with cord and case		
		1 set	Industrial dust, half-face gas mask respirator, with activated carbon filter		
		1 set	Safety Vest with reflectors, skeleton type, yellow		

3.5 Training Facilities

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	1 x 2	2	1	2
Total				**122**
Facilities / Equipment / Circulation**				36
Total Area				**158**

** *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

Based on class size of 25 students/trainees the space requirements for the teaching/learning and circulation areas are as follows:

TEACHING/ LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Lecture Area (1.25 sq. m / person)	5 x 8	40	1	40
Laboratory Area	5 x 8	40	1	40
Learning Resource Area	4 x 5	20	1	20
Tool Room/ Storage Area	4 x 5	20	1	20
Wash ,Toilet & Locker Room	2 x 2.5	5	2	10
Total				**130**
Facilities / Equipment / Circulation*				39
Total Area				**169**

* *Area requirement is equivalent to 30% of the total teaching/ learning areas.*

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.6 Trainer's Qualifications	
Instrumentation & Control Technician NC IV **Trainer's Qualification TQ IV** • Must be a holder of Instrumentation & Control Certificate NC IV or equivalent qualification • Must have completed a Trainor's Training course or has been a technical trainer for at least 3 years • Must have at least 2-years relevant industry experience. • Must be physically & mentally fit.	**Instrumentation & Control Technician NC IV** • Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Instrumentation and Control Servicing NCIV or higher; • Must have at least 2-years relevant industry experience; • Trainors with at least 2 years teaching experience related to instrumentation and control, *but for without industry working experience,* must undergo industry immersion in instrumentation and control for a minimum period of **200 hours**, not including student OJT hours.
3.7 Institutional Assessment	
Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	Institutional assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency. The result of the institutional assessment may be considered as evidence for the assessment for national certification.

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
	4.2.1 Self-Assessment Guide. The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can: i. Identify the candidate's skills and Knowledge j. Highlight gaps in candidate's skills and knowledge k. Provide critical guidance to the assessor and candidate on the evidence that need to be presented l. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior ` 4.2.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to manage the assessment activities of candidates for National Certification. 4.2.3 **Accredited Competency Assessor**. Only competency assessor accredited by TESDA is authorized to assess the competencies of candidates for National Certification.

ANNEX E

AMENDMENT ON TRAINING REGULATIONS FOR FOOTWEAR MAKING NC II *to* SHOEMAKING NC I

<table>
<tr><th>Existing Promulgated Training Regulations
(Board Resolution No. 2004-20)</th><th>Amendments</th></tr>
<tr><td colspan="2">Qualification Title</td></tr>
<tr><td>Footwear Making NC II</td><td>Shoemaking NC I</td></tr>
<tr><td colspan="2">Job Title</td></tr>
<tr><td>• Footwear Maker
• Shoemaker</td><td>• Cutter
• Upper Maker
• Sewer
• Shoemaker
• Shoe Repairer
• Quality Controller</td></tr>
<tr><td colspan="2">Section 1 - Definition of the Qualification</td></tr>
<tr><td>The FOOTWEAR MAKING NC II Qualification consists of competencies that person must achieve to enable him/her to prepare/assemble upper components, prepare bottom components of shoes, and perform lasting and finishing operation.</td><td>The SHOEMAKING NC I Qualification consists of competencies that a person must achieve to be able to cut shoe components, perform cutting, marking, skiving, folding, eyeleting, stitching and lasting thru hand operation including pre-bonding, bonding, repair, cleaning, polishing and packing in a shoe production operation.</td></tr>
<tr><td colspan="2">Section 2- Competency Standards</td></tr>
<tr><td><u>Basic Competencies</u>
1. Participate in workplace communication
2. Work in team environment
3. Practice career professionalism
4. Practice occupational health and safety procedures</td><td><u>Basic Competencies</u>
1. Receive and respond to workplace communication
2. Work with others
3. Solve/address routine problems
4. Enhance self-management skills
5. Support innovation
6. Access and maintain information
7. Follow occupational safety and health policies and procedures
8. Apply environmental work standards
9. Adopt entrepreneurial mindset in the workplace</td></tr>
<tr><td><u>Common Competencies</u>
<table><tr><td>FWR744201</td><td>Apply footwear production practices and principles</td></tr><tr><td>FWR744203</td><td>Carry out measurements and calculation</td></tr><tr><td>FWR744204</td><td>Use and care of hand and power tools</td></tr><tr><td>FWR744205</td><td>Set-up and operate machines</td></tr><tr><td>FWR744206</td><td>Perform basic maintenance</td></tr><tr><td>FWR744208</td><td>Apply quality standards</td></tr></table></td><td><u>Common Competencies</u>
1. Apply shoemaking practices and principles
2. Carry out measurements and calculations
3. Use and maintain hand and power tools
4. Set up and operate machines
5. Perform basic maintenance
6. Apply Industry Standards</td></tr>
</table>

<table>
<tr><th>Existing Promulgated Training Regulations
(Board Resolution No. 2004-20)</th><th>Amendments</th></tr>
<tr><td>Core Competencies

<table>
<tr><td>FWR744312</td><td>Check cut upper and lining components</td></tr>
<tr><td>FWR744313</td><td>Perform blocking/crimping</td></tr>
<tr><td>FWR744314</td><td>Perform skiving operations</td></tr>
<tr><td>FWR744315</td><td>Perform upper leather splitting operation</td></tr>
<tr><td>FWR744316</td><td>Perform machine perforating and gimping operation</td></tr>
<tr><td>FWR744317</td><td>Perform folding operation</td></tr>
<tr><td>FWR744318</td><td>Perform stitching operation on upper and/or lining components</td></tr>
<tr><td>FWR744319</td><td>Perform hand stitching operation</td></tr>
<tr><td>FWR744310</td><td>Perform uppers for hand lasting</td></tr>
<tr><td>FWR744311</td><td>Perform basic hand lasting</td></tr>
<tr><td>FWR744309</td><td>Attach insole by machine</td></tr>
<tr><td>FWR744307</td><td>Perform toe-puff and stiffener activation</td></tr>
<tr><td>FWR744320</td><td>Perform basic machine lasting</td></tr>
<tr><td>FWR744308</td><td>Perform chilling operation</td></tr>
<tr><td>FWR744321</td><td>Perform pre-bonding operation</td></tr>
<tr><td>FWR744322</td><td>Perform bonding operation</td></tr>
<tr><td>FWR744323</td><td>Perform heel attaching operations</td></tr>
<tr><td>FWR744324</td><td>Perform polishing operation</td></tr>
<tr><td>FWR744325</td><td>Perform sock attachment and cleaning operation</td></tr>
<tr><td>FWR744326</td><td>Perform quality checking, repairing and packaging of de-lasted shoes</td></tr>
</table></td><td>Core Competencies

1. Perform cutting by hand operation
2. Perform skiving by hand operation
3. Perform folding and eyeleting by hand operation
4. Perform hand stitching operation
5. Perform basic stitching by machine operation
6. Perform uppers and materials for hand lasting operation
7. Perform basic hand lasting operation
8. Perform pre-bonding and bonding operation
9. Perform repair and sock attachment operation
10. Perform cleaning, polishing and packing operation</td></tr>
<tr><td colspan="2">Section 3 - Training Standards</td></tr>
<tr><td colspan="2">3.1 Curriculum Design</td></tr>
<tr><td colspan="2">Nominal Training Duration</td></tr>
<tr><td>18 Hours (Basic Competencies)
24 Hours (Common Competencies)
640 Hours (Core Competencies)</td><td>47 Hours (Basic Competencies)
24 Hours (Common Competencies)
317 Hours (Core Competencies)
388 Hours

80 Hrs. Supervised Industry Learning (SIL)
(at the option of the TVI)</td></tr>
<tr><td colspan="2">3.2 Training Delivery</td></tr>
<tr><td>The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET.</td><td>2.1 The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET.</td></tr>
</table>

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
• The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Training program allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Training programs are registered with the UTPRAS. The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is allowed to progress at his own pace. The trainer just facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners. • Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations.	a. Course design is based on competency standards set by the industry or recognized industry sector; (**Learning system is driven by competencies written to industry standards)** b. Training delivery is learned-centered and should accommodate individualized and self-paced learning strategies; c. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. d. Assessment is based in the collection of evidence of the performance of work to the industry required standards; e. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. f. Training program allows for recognition of prior learning (RPL) or current competencies; g. Training completion is based on satisfactory completion of all specified competencies not on the specified nominal duration of learning. **2.2** The competency-based TVET system recognizes various types of delivery modes, both on-and-off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs: 2.1 **Institution Based:** • Dual Training System (DTS)/ Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process on which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
• Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies. • Project-based instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.	employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • Supervised Industry Learning (SIL) or on-the-job training (OJT) is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies as prescribed in the training regulations. It is imperative that the deployment of trainees • The classroom-based or in-center instruction uses of learner-centered methods as well as laboratory or field-work components 2.2 **Enterprise-Based** • Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship – is based on a training (and working) agreement between an apprentice and a master craftperson wherein the agreement may be written or oral and the master craftperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training – where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat. 2.3 **Community-Based** • Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
	TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).

3.3 Trainee Entry Requirements

Trainees or students who wants to entry into these qualifications should possess the following requirements: • can communicate both orally and in written • physically and mentally fit • with good moral character • can perform basic mathematical computation	Trainees or students who wants to entry into these qualifications should possess the following requirements: • Must possess good communication skills • Can perform basic mathematical computation

3.4 List of Tools, Equipment and Materials

TOOLS		EQUIPMENT		MATERIAL	
Qty.	Description	Qty.	Description	Qty.	Description
25 pcs.	Trimming Scissors	5 units	Indust'l. sewing machine	25 packs	Needles
2 pcs.	Ball rubbing tool	1 unit	** Skiving machine	5 cones	Thread
1 pc.	Honing stick	2 units	Working table (1X 3 m.)	25 pairs	Cut upper & lining Components (leather)
1 pc	Automatic Numbering machine (manual)	1 unit	**Perforating/gimping machine	25 pcs.	Plastic tray
25 pcs.	Scissors	1 unit	**Splitting machine	25 pcs.	Marble slabs
25 pcs.	Awl	1 unit	**Blocking/crimping machine	25 pcs.	Protective mask
25 pcs.	Folding hammer	1 unit	**Toe lasting machine/accessories	1 gal.	Adhesive
25 pcs.	Adhesive brush	1 unit	**Seat lasting machine/accessories	1 roll	Reinforcement tape
1 set	Diamond puncher	1 unit	Roughing machine	3 sheets	Solvent based stiffeners
1 set	Triangle puncher	1 unit	Pressing machine	1 gal.	solvent
1 set	Round puncher	1 unit	Shoe maker table	1 gal.	adhesive
25 pcs.	Shoe hammer	1 unit	Shoe rack	50 pcs	Stitching needle (pangkustura)
5 pcs.	Spring divider	1 unit	Stamping machine (with accessories)	5 pcs.	Beeswax (pagkit)
25 pcs.	Tacks lifter/puller	1 unit	Polishing machine	10 spool	Cotton thread
25 pcs.	Cutting knife	1 unit	Spray gun	3 sheets	Sliced foam
25 pcs.	Cutting board	1 unit	Air compressor	3 sheets	Insole board
25 pcs.	Awl	1 unit	Cotton roller	1 roll	Plastic
25 pcs.	Lasting pincer			1 gal.	primer
25 pcs.	Adhesive brush			1 kl.	Last powder
25	Plastic box			25 pcs	Silver pen

A. (Full Qualification)

TOOLS	
QTY	Description
25 pcs.	Cutting Knife (Manual 14cm)
25 pcs.	Shoemaker Cutter (Beta 15.5cm)
25 pcs.	Upper Skive Cutter (Beta15cm)
25 pcs.	Folding Hammer 18cmx11cm)
25 pcs.	Awl (12cm)
25 pcs.	Round Puncher (5mm)
25 pcs.	Round Puncher (3mm)
25 pcs.	Puncher (Flower)
50 pcs.	Needles (Pangkustura x2 6cm)
25 pcs.	Scissor (20cm Industrial)
25 pcs.	Trimming Scissor (Nipper)
25 pcs.	Lasting Pincer
25 pcs.	Adhesive Brush (for upper)
25 pcs.	Adhesive Brush (for lasting)
1pc.	Cutting Board (18"x24")
1 pack	Eyelets (5mm)
25 pcs.	Tacks Lifter

Existing Promulgated Training Regulations
(Board Resolution No. 2004-20)

pcs.					
5 pcs.	Shoe iron			1 box	Nail (heel)
25 pcs.	Adhesive brush			75 pairs	Shoe upper
				25 pairs	Shoe last
25 pcs.	Adhesive dispenser			3 rolls each	Silver and gold foil
				1 gal.	adhesive
				1 sheet	4 mm thick foam
				5 pcs.	Polishing wax
				2 kls.	rug
				5 pcs.	Shoe polisher
				5 pcs.	Crepe rubber
				25 pcs.	Safety gloves
				2 qrtz.	Finishing oil
				1 box	Faking crayon (assorted color)

Amendments

MATERIALS	
QTY	**Description**
5 box	Needles DP 16 (for flat bed sewing machines)
5 box	Needles DP 18 (for post bed sewing machines)
25 pcs.	Cotton Thread 30 (cone 2.600 m)
5 pcs.	Cotton Tape (raya)
25 pcs.	Silver Pencils
25 pcs.	White Pencils
75 pcs.	Shoe lasts (size 7)
5 pcs.	Beeswax
5 Gals.	Contact Cement
5 Gals.	Rubber Cement
3 Gals.	Grafted adhesive
3 Gals.	Solvent
1 gal.	Primer
1 kl.	Last Powder
2 boxes	Nail 3/16
1 box	Nail tacks 7/18
3 kls.	Rags (white)
25 pcs.	Shoe Polisher
1 Liter	Oil
1 pc./color	Foil (Gold,Silver,Bronze)
5 pcs.	Insole Board with Slice Foam (5mm)
1 pack	Tissue Paper (500 pcs.)
25 pcs.	Marble Slab/Granite Stone (8"x10")
25 pcs.	Plastic Tray
1 bottle	Leather Paint Black
1 bottle	Leather Paint Brown
1 bottle	Leather Paint Beige
150 square ft.	Leather (Black)
150 square ft.	Pig skin lining (Beige)
15 meter	Synthetic (Black)
15 meter	Synthetic Lining (Beige)
25 pcs.	Puncher Board (5"x5")

EQUIPMENT	
QTY	**Description**
3 units	Sewing Machines Flat Bed
3 units	Sewing Machines Post Bed
1 unit	Numbering Machine Manual
1 unit	Heater
1 pc.	Cutting Table (6 ft. x4 ft.)

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments

PERSONAL PROTECTIVE EQUIPMENT	
QTY	Description
100 pcs.	Protective Face Mask
25 pcs.	Apron (thick denim cloth)
25 pcs.	Safety Gloves
25 pcs.	Hairnet
25 pcs.	Rubber Shoes (Trainee to provide)

3.5 Training Facilities

TEACHING/LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Shop area	6 X 10	60		60
Tool Room & S/M Storage Area	2 X 4	8		8
Learning Resource Area	5 X 9	45		45
Wash Area /Comfort Room *(male & female)*	2.5 X 4	10		10
Total				123
Circulation Area**				37
Total Workshop Area				**160**

Based on a class intake of 25 learners/trainees.

Space Requirement	Size in Meters	Area in Sq. Meters
Contextual Learning Area (Lecture room)	6.25 X 8	50
Distance Learning (Laboratory/Workshop/ Activity area)	12 x 10	120
Storage Area (Tool room & S/M storage area)	2.5 x 4	10
Learning Resource Area	2.5 x 4	10
Wash area/ comfort room (Male, Female, PWD)	2.5 x 4	10
Circulation Area	2.5 x 4	10
TOTAL AREA		210 sq. m

NOTE:
The Training Center may enter into Memorandum of Agreement (MOA) with industry for use of other related facilities and equipment to supplement the requirement of the training program.

3.7 Trainer's Qualifications

- be a holder of NC II
- have undergone training on Training Methodology II (TM II)
- be physically and mentally fit
- *have at least 1 year job/industry experience
- be a civil service eligible (for government position or professional license issued by the Professional Regulatory Commission)

- Must be a Holder of National TVET Trainer Certificate (NTTC) Level I in SHOEMAKING NC II
- Must have at least three (3) years industry experience in Shoemaking within the last five (5) years

3.7 Institutional Assessment

. Institutional Assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.

Institutional Assessment is gathering of evidences to determine the achievements of the requirements of the qualification to enable the trainer make judgement whether the trainee is competent or not competent.

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
Section 4. National Assessment and Certification Arrangements	
4.7 To attain the National Qualification of **Footwear Making NC II**, the candidate must demonstrate competence in all the units of competency listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General. 4.8 The qualification of Footwear Making NC II may be attained through: 4.2.1 Accumulation of Certificates of Competency (COCs) in all the following areas: 4.8.1.1 Assemble Footwear Upper Components 4.8.1.1.1 Check cut upper and lining components 4.8.1.1.2 Perform blocking/crimping 4.8.1.1.3 Perform skiving operations 4.8.1.1.4 Perform upper leather splitting operation 4.8.1.1.5 Perform machine perforating and gimping operation 4.8.1.1.6 Perform folding operation 4.8.1.1.7 Perform stitching operation on upper and/or lining components 4.8.1.1.8 Perform hand stitching operation 4.8.1.2 Perform Footwear Lasting by Machine and by Hand 4.8.1.2.1 Prepare uppers for hand lasting 4.8.1.2.2 Perform basic hand lasting 4.8.1.2.3 Attach insole by machine 4.8.1.2.4 Perform toe-puff and stiffener activation 4.8.1.2.5 Perform basic machine lasting 4.8.1.2.6 Perform chilling operation 4.8.1.2.7 Perform pre-bonding operations 4.8.1.2.8 Perform bonding operations 4.8.1.2.9 Perform heel attaching operations 4.8.1.3 Perform Footwear Finishing Operations 4.8.1.3.1 Perform sock attachment and cleaning operation 4.8.1.3.2 Perform polishing operation	Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards. The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification. **4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS** 4.1.10 A National Certificate (NC) is issued when a candidate has demonstrated competence on all unit/s of competency in a qualification with a promulgated Training Regulations. 4.1.11 Individuals wanting to be certified will have to be assessed in accordance with the requirements identified in the evidence guide of the relevant unit/s of competency. 4.1.12 The industry shall determine assessment and certification requirements for each qualification with promulgated Training Regulations: It includes the following: a. Entry requirements for candidates b. Evidence gathering methods c. Qualification requirements of competency assessors

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
4.8.1.3.3 Perform quality checking, repairing and packaging of de-lasted shoes Successful candidates shall be awarded Certificates of Competency (COC) 4.2.2 Demonstration of competence through project-type assessment covering all the required units of qualification. 4.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 4.4 The following are qualified to apple for assessment and certification: 4.4.1 Graduates of formal, non-formal and informal including enterprise- based training programs 4.4.2 Experienced workers (wage employed or self-employed) 4.5 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".	d. Specific assessment and certification arrangements as identified by industry 4.1.4 The qualification of **SHOEMAKING NC I** may be attained through accumulation of Certificates of Competency covering in the following clusters of competencies: COC1 – Produce Derby Shoes COC2 – Produce Doll Shoes COC3 – Produce Boat Shoes Upon accumulation and submission of all COCs acquired, an individual shall be issued the corresponding National Certificate. 4.1.5 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 4.1.6 The following are qualified to apply for assessment and certification: 4.1.6.1 Graduates of WTR-registered programs, NTR-registered programs or formal/non-formal/informal including enterprise-based trainings related to SHOEMAKING NC I; OR 4.1.6.2 Experienced workers (wage employed or self-employed) who gained competencies in basic shoemaking for at least three (3) years within the last five (5) years. 4.1.7 Recognition of Prior Learning (RPL). Candidates who have gained competencies through informal training, previous work

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
	and/or life experiences may apply for recognition in a particular qualification through competency assessment. **4.2 COMPETENCY ASSESSMENT REQUISITE** 4.3.1 **Self-Assessment Guide.** The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can: e. Identify the candidate's skills and knowledge f. Highlight gaps in candidate's skills and knowledge g. Provide critical guidance to the assessor and candidate on the evidence that need to be presented h. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior ` 4.3.2 **Accredited Assessment Center.** Only Assessment Center accredited by TESDA is authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
	the assessment for National Certification. 4.3.3 **Accredited Competency Assessor.** Only accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.

ANNEX F

AMENDMENT ON TRAINING REGULATIONS FOR FOOTWEAR MAKING NC II *to* SHOEMAKING NC II

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
Qualification Title	
Footwear Making NC II	Shoemaking NC II
Job Title	
• Footwear Maker • Shoemaker	• Upper Shoe Maker • Sewer • Quality Controller • Cutting Machine Operator • Skiving Machine Operator • Folding Machine Operator • Eyelet Machine Operator • Lasting Machine Operator • Chilling Machine Operator • Heel Attaching Machine Operator • Goodyear Welt Machine Operator • Insole Attaching Machine Operator • Releasing Shoe Last Machine Operator • Polishing Machine Operator
Section 1 - Definition of the Qualification	
The FOOTWEAR MAKING NC II Qualification consists of competencies that person must achieve to enable him/her to prepare/assemble upper components, prepare bottom components of shoes, and perform lasting and finishing operation.	The SHOEMAKING NC II Qualification consists of competencies that a person must achieve to be able to cut shoe components, perform skiving, folding, blocking and crimping, eyeleting, advance stitching, heel and toe lasting, chilling and heel attaching thru machine operation including repair, quality checking, sock attachment, cleaning and packaging in a shoe production operation.
Section 2- Competency Standards	
Basic Competencies 5. Participate in workplace communication 6. Work in team environment 7. Practice career professionalism 8. Practice occupational health and safety procedures	Basic Competencies 10. Participate in workplace communication 11. Work in a team environment 12. Solve/address general workplace problems 13. Develop career and life decisions 14. Contribute to workplace innovation 15. Present relevant information 16. Practice occupational safety and health policies and procedures 17. Exercise efficient and effective sustainable practices in the workplace

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
	18. Practice entrepreneurial skills in the workplace
Common Competencies	Common Competencies
FWR744201 Apply footwear production practices and principles FWR744203 Carry out measurements and calculation FWR744204 Use and care of hand and power tools FWR744205 Set-up and operate machines FWR744206 Perform basic maintenance FWR744208 Apply quality standards	SHM753201 Apply Shoemaking practices and principles SHM753202 Carry out measurements and calculation SHM753203 Use and care of hand and power tools SHM753204 Set-up and operate machines SHM753205 Perform basic maintenance SHM753206 Apply quality standards
Core Competencies	Core Competencies
FWR744312 Check cut upper and lining components FWR744313 Perform blocking/crimping FWR744314 Perform skiving operations FWR744315 Perform upper leather splitting operation FWR744316 Perform machine perforating and gimping operation FWR744317 Perform folding operation FWR744318 Perform stitching operation on upper and/or lining components FWR744319 Perform hand stitching operation FWR744310 Perform uppers for hand lasting FWR744311 Perform basic hand lasting FWR744309 Attach insole by machine FWR744307 Perform toe-puff and stiffener activation FWR744320 Perform basic machine lasting FWR744308 Perform chilling operation FWR744321 Perform pre-bonding operation FWR744322 Perform bonding operation FWR744323 Perform heel attaching operations FWR744324 Perform polishing operation FWR744325 Perform sock attachment and cleaning operation FWR744326 Perform quality checking, repairing and packaging of de-lasted shoes	SHM753311 Perform cutting by machine operation SHM753312 Perform skiving by machine operation SHM753313 Perform folding by machine operation SHM753314 Perform blocking and crimping by machine operation SHM753315 Perform eyeleting by machine operation SHM753316 Perform advance stitching by machine operation SHM753317 Perform heel and toe lasting by machine operation SHM753318 Perform heel attaching by machine operation SHM753319 Perform finishing and packing operation
Section 3 - Training Standards	
3.1 Curriculum Design	

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
Nominal Training Duration	
18 Hours (Basic Competencies) 24 Hours (Common Competencies) 640 Hours (Core Competencies)	37 Hrs. (Basic Competencies) 28 Hrs. (Common Competencies) 472 Hrs. (Core Competencies) 533 Hours 80 Hrs. - Supervised Industry Learning (SIL)
3.2 Training Delivery	
The delivery of training should adhere to the design of the curriculum. Delivery should be guided by the 10 basic principles of the competency-based TVET. • The training is based on curriculum developed from the competency standards; • Learning is modular in its structure; • Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; • Training is based on work that must be performed; • Training materials are directly related to the competency standards and the curriculum modules; • Assessment is based in the collection of evidence of the performance of work to the industry required standard; • Training is based both on and off-the-job components; • Training program allows for recognition of prior learning (RPL) or current competencies; • Training allows for multiple entry and exit; and • Training programs are registered with the UTPRAS. The competency-based TVET system recognizes various types of delivery modes, both on and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities may be adopted when designing training programs: • The dualized mode of training delivery is preferred and recommended. Thus programs would contain both in-school and in-industry training or fieldwork components. Details can be referred to the Dual Training System (DTS) Implementing Rules and Regulations. • Modular/self-paced learning is a competency-based training modality wherein the trainee is	3. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. h. Course design is based on competency standards set by the industry or recognized industry sector; (Learning system is driven by competencies written to industry standards) i. Training delivery is learner-centered and should accommodate individualized and self-paced learning strategies; j. Training can be done on an actual workplace setting, simulation of a workplace and/or through adoption of modern technology. k. Assessment is based in the collection of evidence of the performance of work to the industry required standards; l. Assessment of competency takes the trainee's knowledge and attitude into account but requires evidence of actual performance of the competency as the primary source of evidence. m. Training program allows for recognition of prior learning (RPL) or current competencies; n. Training completion is based on satisfactory completion of all specified competencies. 4. The competency-based TVET system recognizes various types of delivery modes, both on-and off-the-job as long as the learning is driven by the competency standards specified by the industry. The following training modalities and their variations/components may be adopted singly or in combination with other modalities when designing and delivering training programs: **2.4 Institution- Based:**

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
allowed to progress at his own pace. The trainer just facilitates the training delivery. • Peer teaching/mentoring is a training modality wherein fast learners are given the opportunity to assist the slow learners. • Supervised industry training or on-the-job training is an approach in training designed to enhance the knowledge and skills of the trainee through actual experience in the workplace to acquire specific competencies prescribed in the training regulations. • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video or computer technologies. • Project-based instruction is an authentic instructional model or strategy in which students plan, implement and evaluate projects that have real world applications.	• Dual Training System (DTS)/Dualized Training Program (DTP) which contain both in-school and in-industry training or fieldwork components. Details can be referred to the Implementing Rules and Regulations of the DTS Law and the TESDA Guidelines on the DTP; • Distance learning is a formal education process in which majority of the instruction occurs when the students and instructor are not in the same place. Distance learning may employ correspondence study, audio, video, computer technologies or other modern technology that can be used to facilitate learning and formal and non-formal training. Specific guidelines on this mode shall be issued by the TESDA Secretariat. • The traditional classroom-based or in-center instruction uses of learner-centered methods as well as laboratory or field-work components. **2.5 Enterprise-Based:** • Formal Apprenticeship - Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • Informal Apprenticeship - is based on a training (and working) agreement between an apprentice and a master craftsperson wherein the agreement may be written or oral and the master craftsperson commits to training the apprentice in all the skills relevant to his or her trade over a significant period of time, usually between one and four years, while the apprentice commits to contributing productively to the work of the business. Training is integrated into the production process and apprentices learn by working alongside the experienced craftsperson. • Enterprise-based Training- where training is implemented within the company in accordance with the requirements of the specific company. Specific guidelines on this mode shall be issued by the TESDA Secretariat.

<table>
<tr><th>Existing Promulgated Training Regulations
(Board Resolution No. 2004-20)</th><th>Amendments</th></tr>
<tr><td></td><td>2.6 Community-Based

• Community-Based – short term programs conducted by non-government organizations (NGOs), LGUs, training centers and other TVET providers which are intended to address the specific needs of a community. Such programs can be conducted in informal settings such as barangay hall, basketball courts, etc. These programs can also be mobile training program (MTP).</td></tr>
<tr><td colspan="2">3.3 Trainee Entry Requirements</td></tr>
<tr><td>Trainees or students who wants to entry into these qualifications should possess the following requirements:
• can communicate both orally and in written
• physically and mentally fit
• with good moral character
• can perform basic mathematical computation</td><td>Trainees or students wishing to gain entry into this course should possess the following requirements:

• Must possess good communication skills
• Can perform basic mathematic computation
•</td></tr>
<tr><td colspan="2">3.4 List of Tools, Equipment and Materials</td></tr>
<tr><td>
<table>
<tr><th colspan="2">TOOLS</th><th colspan="2">EQUIPMENT</th><th colspan="2">MATERIAL</th></tr>
<tr><th>Qty.</th><th>Description</th><th>Qty.</th><th>Description</th><th>Qty.</th><th>Description</th></tr>
<tr><td>25 pcs.</td><td>Trimming Scissors</td><td>5 units</td><td>Indust'l. sewing machine</td><td>25 packs</td><td>Needles</td></tr>
<tr><td>2 pcs.</td><td>Ball rubbing tool</td><td>1 unit</td><td>** Skiving machine</td><td>5 cones</td><td>Thread</td></tr>
<tr><td>1 pc.</td><td>Honing stick</td><td>2 units</td><td>Working table (1X 3 m.)</td><td>25 pairs</td><td>Cut upper & lining Components (leather)</td></tr>
<tr><td>1 pc</td><td>Automatic Numbering machine (manual)</td><td>1 unit</td><td>**Perforating/gimping machine</td><td>25 pcs.</td><td>Plastic tray</td></tr>
<tr><td>25 pcs.</td><td>Scissors</td><td>1 unit</td><td>**Splitting machine</td><td>25 pcs.</td><td>Marble slabs</td></tr>
<tr><td>25 pcs.</td><td>Awl</td><td>1 unit</td><td>**Blocking/crimping machine</td><td>25 pcs.</td><td>Protective mask</td></tr>
<tr><td>25 pcs.</td><td>Folding hammer</td><td>1 unit</td><td>**Toe lasting machine/accessories</td><td>1 gal.</td><td>Adhesive</td></tr>
<tr><td>25 pcs.</td><td>Adhesive brush</td><td>1 unit</td><td>**Seat lasting machine/accessories</td><td>1 roll</td><td>Reinforcement tape</td></tr>
<tr><td>1 set</td><td>Diamond puncher</td><td>1 unit</td><td>Roughing machine</td><td>3 sheets</td><td>Solvent based stiffeners</td></tr>
<tr><td>1 set</td><td>Triangle puncher</td><td>1 unit</td><td>Pressing machine</td><td>1 gal.</td><td>solvent</td></tr>
<tr><td>1 set</td><td>Round puncher</td><td>1 unit</td><td>Shoe maker table</td><td>1 gal.</td><td>adhesive</td></tr>
<tr><td>25 pcs.</td><td>Shoe hammer</td><td>1 unit</td><td>Shoe rack</td><td>50 pcs</td><td>Stitching needle (pangkustura)</td></tr>
<tr><td>5 pcs.</td><td>Spring divider</td><td>1 unit</td><td>Stamping machine (with accessories)</td><td>5 pcs.</td><td>Beeswax (pagkit)</td></tr>
<tr><td>25 pcs.</td><td>Tacks lifter/puller</td><td>1 unit</td><td>Polishing machine</td><td>10 spool</td><td>Cotton thread</td></tr>
<tr><td>25 pcs.</td><td>Cutting knife</td><td>1 unit</td><td>Spray gun</td><td>3 sheets</td><td>Sliced foam</td></tr>
<tr><td>25 pcs.</td><td>Cutting board</td><td>1 unit</td><td>Air compressor</td><td>3 sheets</td><td>Insole board</td></tr>
<tr><td>25 pcs.</td><td>Awl</td><td>1 unit</td><td>Cotton roller</td><td>1 roll</td><td>Plastic</td></tr>
<tr><td>25 pcs.</td><td>Lasting pincer</td><td></td><td></td><td>1 gal.</td><td>primer</td></tr>
<tr><td>25 pcs.</td><td>Adhesive brush</td><td></td><td></td><td>1 kl.</td><td>Last powder</td></tr>
<tr><td>25</td><td>Plastic box</td><td></td><td></td><td>25 pcs</td><td>Silver pen</td></tr>
</table>
</td><td>A. (Full Qualification)

<table>
<tr><th colspan="2">TOOLS</th></tr>
<tr><th>QTY</th><th>DESCRIPTION</th></tr>
<tr><td>25 pcs.</td><td>Folding Hammer</td></tr>
<tr><td>25 pcs.</td><td>Scissor</td></tr>
<tr><td>25 pcs.</td><td>Trimming Scissor (Nipper)</td></tr>
<tr><td>25 pcs.</td><td>Lasting Pincer</td></tr>
<tr><td>25 pcs.</td><td>Adhesive Brush (for upper)</td></tr>
<tr><td>25 pcs.</td><td>Adhesive Brush (for lasting)</td></tr>
<tr><td>25 pcs.</td><td>Tacks Lifter</td></tr>
<tr><th colspan="2">MATERIALS</th></tr>
<tr><th>QTY</th><th>DESCRIPTION</th></tr>
<tr><td>25 pcs.</td><td>Needles (DP 16)</td></tr>
<tr><td>25 pcs.</td><td>Needles (DP 18)</td></tr>
<tr><td>25 pcs.</td><td>Thread (cotton/cone)</td></tr>
</table>
</td></tr>
</table>

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)						Amendments	
pcs.							
5 pcs.	Shoe iron			1 box	Nail (heel)	1 pack	Tissue Paper (500 pcs.)
25 pcs.	Adhesive brush			75 pairs	Shoe upper	25 pcs.	Silver Pencils
				25 pairs	Shoe last	25 pcs.	White Pencils
25 pcs.	Adhesive dispenser			3 rolls each	Silver and gold foil	5 Gals.	Contact Cement
				1 gal.	adhesive	5 Gals.	Rubber Cement
				1 sheet	4 mm thick foam	3 Gals.	Grafted adhesive
				5 pcs.	Polishing wax	3 Gals.	Solvent
				2 kls.	rug	1 gal.	Primer
				5 pcs.	Shoe polisher	1 box	Nail tacks 3/16
				5 pcs.	Crepe rubber	3 kls.	Rags
				25 pcs.	Safety gloves	1 liter	Oil
				2 qrtz.	Finishing oil	5 sheets	Insole Board (5mm)
				1 box	Faking crayon (assorted color)	5 sheets	Insole foam (3mm)
						25 pcs.	Marble Slab/Granite Stone (8"x10")
						1 pack	Tissue Paper
						25 pcs.	Plastic Tray
						1 bottle	Leather Paint Black
						1 bottle	Leather Paint Brown
						1 bottle	Leather Paint Beige
						150 ft2	Leather (Black)
						150 ft2	Pig skin lining (Beige)
						15 meter	Synthetic (Black)
						15 meter	Synthetic Lining (Beige)
						1 pack	Eyelets (5 mm)

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments

EQUIPMENT

QTY	DESCRIPTION
1 unit	Cutting Machine
1 unit	Skiving Machine
1 unit	Folding Machine
1 unit	Blocking and Crimping Machine
1 unit	Eyeleting Machine
3 units	Sewing Machine Flat bed
3 units	Sewing Machine Post bed
1 unit	Toe lasting Machine
1 unit	Heel lasting Machine
1 unit	Roughing Machine with dust collector
1 unit	Heel Nailing Machine
1 unit	Press Machine
1 unit	Goodyear Welt Machine
1 unit	Trimming Machine
1 unit	Releasing Shoe Last Machine
1 unit	Polishing Machine, with cotton brush
1 unit	Air compressor

PERSONAL PROTECTIVE EQUIPMENT

QTY	DESCRIPTION
100 pcs.	Protective Face Mask
25 pcs.	Apron (thick denim cloth)
25 pcs.	Safety Gloves
25 pcs.	Hairnet
25 pcs.	Rubber Shoes (Trainee to provide)

3.5 Training Facilities

TEACHING/LEARNING AREAS	SIZE IN METERS	AREA IN SQ. METERS	QTY	TOTAL AREA IN SQ. METERS
Shop area	6 X 10	60		60
Tool Room & S/M Storage Area	2 X 4	8		8
Learning Resource Area	5 X 9	45		45
Wash Area /Comfort Room *(male & female)*	2.5 X 4	10		10
Total				123
Circulation Area**				37
Total Workshop Area				**160**

The workshop must be of concrete structure. Based on class size of 25 students/trainees the space requirements for the teaching/ learning and circulation areas are as follows:

Space Requirement	Size in Meters	Area in Sq. Meters
Distance Learning (Laboratory/Workshop/ Activity area)	10X10	120
Contextual Learning Area (Lecture room)	4x5	20
Trainers Resource Area and Contextual Learning Area	2.5x4	10
Storage Area (Tool room & S/M storage area)	2.5x4	10
Wash area/ comfort room (Male, Female, PWD)	2.5x4	10
Circulation Area	2.5x4	10
TOTAL AREA		160 sq. m

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
3.8 Trainer's Qualifications	
• be a holder of NC II • have undergone training on Training Methodology II (TM II) • be physically and mentally fit • *have at least 1 year job/industry experience • be a civil service eligible (for government position or professional license issued by the Professional Regulatory Commission)	• Must be a Holder of National TVET Trainer Certificate (NTTC) Level I in SHOEMAKING NC II • Must have at least three (3) years industry experience in Shoemaking within the last five (5) years
3.7 Institutional Assessment	
. Institutional Assessment is undertaken by trainees to determine their achievement of units of competency. A certificate of achievement is issued for each unit of competency.	Institutional Assessment is gathering of evidences to determine the achievements of the requirements of the qualification to enable the trainer make judgement whether the trainee is competent or not competent.
Section 4. National Assessment and Certification Arrangements	
4.9 To attain the National Qualification of **Footwear Making NC II**, the candidate must demonstrate competence in all the units of competency listed in Section 1. Successful candidates shall be awarded a National Certificate signed by the TESDA Director General. 4.10 The qualification of Footwear Making NC II may be attained through: 4.2.1 Accumulation of Certificates of Competency (COCs) in all the following areas: 4.10.1.1 Assemble Footwear Upper Components 4.10.1.1.1 Check cut upper and lining components 4.10.1.1.2 Perform blocking/crimping 4.10.1.1.3 Perform skiving operations 4.10.1.1.4 Perform upper leather splitting operation 4.10.1.1.5 Perform machine perforating and gimping operation 4.10.1.1.6 Perform folding operation 4.10.1.1.7 Perform stitching operation on upper and/or lining components 4.10.1.1.8 Perform hand stitching operation	Competency Assessment is the process of collecting evidence and making judgments whether competency has been achieved. The purpose of assessment is to confirm that an individual can perform to the standards expected at the workplace as expressed in relevant competency standards. The assessment process is based on evidence or information gathered to prove achievement of competencies. The process may be applied to an employable unit(s) of competency in partial fulfillment of the requirements of the national qualification. **4.1 NATIONAL ASSESSMENT AND CERTIFICATION ARRANGEMENTS** 4.1.1 A National Certificate (NC) is issued when a candidate has demonstrated competence on all units of competency in a qualification with a promulgated Training Regulations. 4.1.2 A Certificate of Competency (COC) is issued by the Authority to individuals who were assessed as competent in a single unit or cluster of related units of competency. 4.1.3 The industry shall determine assessment and certification requirements for each qualification with promulgated Training Regulations: It includes the following:

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
4.10.1.2 Perform Footwear Lasting by Machine and by Hand 4.10.1.2.1 Prepare uppers for hand lasting 4.10.1.2.2 Perform basic hand lasting 4.10.1.2.3 Attach insole by machine 4.10.1.2.4 Perform toe-puff and stiffener activation 4.10.1.2.5 Perform basic machine lasting 4.10.1.2.6 Perform chilling operation 4.10.1.2.7 Perform pre-bonding operations 4.10.1.2.8 Perform bonding operations 4.10.1.2.9 Perform heel attaching operations 4.10.1.3 Perform Footwear Finishing Operations 4.10.1.3.1 Perform sock attachment and cleaning operation 4.10.1.3.2 Perform polishing operation 4.10.1.3.3 Perform quality checking, repairing and packaging of de-lasted shoes Successful candidates shall be awarded Certificates of Competency (COC) 5.2.2 Demonstration of competence through project-type assessment covering all the required units of qualification. 5.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 5.4 The following are qualified to apple for assessment and certification: 4.4.1 Graduates of formal, non-formal and informal including enterprise- based training programs 4.4.2 Experienced workers (wage employed or self-employed) 4.5 The guidelines on assessment and certification are discussed in detail in the "Procedures Manual on Assessment and Certification" and "Guidelines on the Implementation of the Philippine TVET Qualification and Certification System (PTQCS)".	a. Entry requirements for candidates b. Evidence gathering methods c. Qualification requirements of competency assessors d. Specific assessment and certification arrangements as identified by industry 4.1.4 The qualification of **SHOEMAKING NC II** may be attained through accumulation of Certificates of Competency covering in the following clusters of competencies: COC1– Upper Making by Machine Operation COC2– Advance stitching by machine operation COC3- Heel and toe lasting by machine operation COC4- Finishing and packing operation Upon accumulation and submission of all COCs acquired, an individual shall be issued the corresponding National Certificate. 4.1.5 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units. 4.1.6 The following are qualified to apply for assessment and certification: 4.1.6.1 Graduates of WTR-registered programs, NTR- registered programs or formal/ non-formal/ informal including enterprise-based trainings related to SHOEMAKING NC II; OR 4.1.6.2 Experienced workers (wage employed or self-emplyed) who gained competencies in mechanized shoemaking for at least two (2) years within the last five (5) years. 4.1.7 Recognition of Prior Learning (RPL). Candidates who have gained competencies through informal training, previous work or life experiences may apply for recognition in a particular qualification through a recognition/ assessment process. **4.2 COMPETENCY ASSESSMENT REQUISITE**

Existing Promulgated Training Regulations (Board Resolution No. 2004-20)	Amendments
	4.3.4 **Self-Assessment Guide.** The self-assessment guide (SAG) is accomplished by the candidate prior to actual competency assessment. SAG is a pre-assessment tool to help the candidate and the assessor determine what evidence is available, where gaps exist, including readiness for assessment. This document can: i. Identify the candidate's skills and knowledge j. Highlight gaps in candidate's skills and knowledge k. Provide critical guidance to the assessor and candidate on the evidence that need to be presented l. Assist the candidate to identify key areas in which practice is needed or additional information or skills that should be gained prior ` 4.3.5 **Accredited Assessment Center.** Only TESDA Accredited Assessment Centers are authorized to conduct competency assessment. Assessment centers undergo a quality assured procedure for accreditation before they are authorized by TESDA to manage the assessment for National Certification. 4.3.6 **Accredited Competency Assessor.** Only an accredited competency assessor is authorized to conduct assessment of competence. Competency assessors undergo a quality assured system of accreditation procedure before they are authorized by TESDA to assess the competencies of candidates for National Certification.