

Republic of the Philippines
TECHNICAL EDUCATION AND SKILLS DEVELOPMENT AUTHORITY
 East Service Road, South Superhighway, Taguig City

92nd TESDA BOARD MEETING
 16 December 2015, Wednesday, 2:00 p.m.
 7/F TESDA Board Room, Office of the Chair
 TESDA Complex, South Superhighway, Taguig City

Resolution No. 2015- 18
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**APPROVING THE AMENDMENTS TO THE TRAINING REGULATIONS FOR
 MECHATRONICS SERVICING NC IV**

WHEREAS, TESDA Board Resolution No. 2006-28 was issued approving and promulgating the Training Regulations for Mechatronics Servicing NC IV last 14 December 2006 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 in fast-changing industries like Information and Communication Technology (ICT) and electronics;

WHEREAS, industry experts and partners, headed by Engr. Gamaliel F. Itao and Engr. Joel B. Bajador of the Mechatronics and Robotics Society of the Philippines, Inc. (MRSP) Expert Panel, with the assistance of the Qualifications and Standards Office (QSO) of TESDA, have recommended the amendments to the existing Training Regulations for Mechatronics Servicing NC IV;

WHEREAS, during the 82nd Standards-Setting and Systems Development (SSSD) Committee - TESDA Board-TESDA Secretariat Consultation Meeting held on 16 November 2015, the Committee favorably endorsed the following amendments to the above-mentioned Training Regulations for Mechatronics Servicing NC IV;

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Qualification Title	
Mechatronics Servicing NC IV	Mechatronics Servicing NC IV
Job Title	
<ul style="list-style-type: none"> • Mechatronics Technician 4 • Industrial Automation Technician 	<ul style="list-style-type: none"> • Mechatronics Technician • Industrial Automation Technician
Section 1 - Definition of the Qualification	
The MECHATRONICS SERVICING NC IV Qualification consists of competencies that must possess to enable a person to install, configure, adjust, maintain, and repair Mechatronics devices as well as develop software programs, perform diagnostics, troubleshooting, & commissioning on Mechatronics systems.	The MECHATRONICS SERVICING NC IV Qualification consists of competencies that must be possess to enable a person to develop advanced PLC and HMI software programs and perform commissioning, diagnostics & troubleshooting on advanced PLC- and HMI-based mechatronics and automation systems.

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
Section 1- Units of Competency	
<u>Basic Competencies</u> (Prescribed competencies for NC IV)	<u>Basic Competencies</u> (Prescribed competencies for NC IV)
<u>Common Competencies</u> (Prescribed competencies for NC IV)	<u>Common Competencies</u> (Prescribed competencies for NC IV) plus one unit of competency - <ul style="list-style-type: none"> • Test electronic components
<u>Core Competencies</u> 1. Commission Mechatronics Systems 2. Diagnose and Troubleshoot Mechatronics Systems	<u>Core Competencies</u> 1. Develop Advanced PLC and HMI Application Program 2. Commission Advanced PLC- and HMI-based Mechatronics and Automation Systems 3. Diagnose and Troubleshoot Advanced PLC- and HMI-based Mechatronics and Automation Systems
Section 2 - Competency Standards	
Updates/Changes were made consistent with the proposed amendments on Basic, Common and Core Competencies.	
Section 3 - Training Standards	
3.1 Curriculum Design	
Nominal Training Duration	
30 hrs – Basic Competencies 60 hrs – Common Competencies 96 hrs – Core Competencies <hr/> 186 hrs - Total	30 hrs – Basic Competencies 64 hrs – Common Competencies 106 hrs – Core Competencies <hr/> 200 hrs - Total

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
<p>3.2 Training Delivery</p>	
<p>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.</p> <ul style="list-style-type: none"> • 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. <p>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</p>	<ol style="list-style-type: none"> 1. The delivery of training shall adhere to the design of the curriculum. Delivery shall be guided by the principles of competency-based TVET. <ol style="list-style-type: none"> 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; and g. Training completion is based on satisfactory performance of all specified competencies.

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
<p>adopted when designing training programs:</p> <ul style="list-style-type: none"> • 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. • 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. 	<p>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:</p> <p>2.1. Institution- Based:</p> <ul style="list-style-type: none"> • 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; • 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. <p>2.2. Enterprise-Based:</p> <ul style="list-style-type: none"> • Formal Apprenticeship – Training within employment involving a contract between an apprentice and an enterprise on an approved apprenticeable occupation. • 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.

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**APPROVING THE AMENDMENTS TO THE TRAINING REGULATIONS FOR
 MECHATRONICS SERVICING NC IV**

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
3.3 Trainee Entry Requirements	
The trainees who wish to enter the course should possess the following requirements: <ol style="list-style-type: none"> 1. Must have completed training in Mechatronics Servicing NC III, or equivalent in experience 2. Must be physically and mentally fit to undergo training 3. With good moral character 	The trainees who wish to enter the course should possess the following requirements: <ul style="list-style-type: none"> • Holder of Mechatronics Servicing NC III 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.
3.4 List of Tools, Equipment and Materials Recommended list of tools, equipment and materials for the training of 25 trainees for Mechatronics Servicing NC IV:	

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TOOLS		TOOLS	
QTY.	DESCRIPTION	QTY.	DESCRIPTION
25 pcs	Long-nosed pliers	10 pcs	Long-nosed pliers
25 pcs	Diagonal cutters	10 pcs	Standard screwdrivers
25 pcs	Standard screwdrivers	10 pcs	Diagonal cutters
25 pcs	Phillips screwdrivers	10 pcs	Phillips screwdrivers
25 pcs	Electrical pliers	10 pcs	Electrical pliers
25 pcs	Soldering iron	10 pcs	Soldering iron
25 pcs	Adjustable wrench	5 sets	Precision screwdrivers
5 pcs	Wire stripper	10 pcs	Adjustable wrench
5 pcs	Crimping tool	5 pcs	Wire stripper
5 sets	Allen wrench	5 pcs	Crimping tool
5 sets	Jeweller's screwdrivers	5 sets	Allen wrench
5 sets	Combination wrench, metric		
5 sets	Combination wrench, English		

Existing Promulgated Training Regulations (Board Resolution No. 2006-28)		Amendments	
EQUIPMENT		EQUIPMENT	
QTY.	ITEM	QTY.	DESCRIPTION
5 sets	PLC system	5 sets	PLC system
5 sets	PLC configuration software	5 sets	PLC configuration software
25 pcs	Multimeters	10 pcs	Multimeters
5 pcs	Signal generators	5 pcs	Regulated power supplies
1 pc.	Oscilloscope	4 sets	HMI panel
5 pcs	Transmitters or Transducers	4 sets	HMI software
1 pc.	Air compressor	2 pcs	Transmitters or Transducers
25 pcs	Regulated power supplies	1 pc.	Air compressor
5 pcs	Cylinder Actuator	2 pcs	Signal generators
1 pc.	Stepper motor	20 pcs	Cylinder Actuator
1 pc.	Servomotor	1 pc.	Stepper motor
1 pc.	Variable frequency drive	2 pc.	Variable frequency drive

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25 pcs	Buzzers	1 pc.	Servomotor
25 pcs	Industrial panel switches	10 pcs	Buzzers
25 pcs	Indicating lamps	25 pcs	Industrial panel switches
5 pcs	Directional solenoid valves	10 pcs	Indicating lamps
5 pcs	Filter-Regulator-Lubricator set	10 pcs	Directional solenoid valves
5 pcs	Pressure gage	5 pcs	Filter-Regulator-Lubricator set
5 pcs	Limit switches	5 pcs	Pressure gage
5 pcs	Photoelectric switches	5 pcs	Limit switches
5 pcs	Proximity switches	5 pcs	Photoelectric switches
25 pcs	Relays	5 pcs	Proximity switches
5 pcs	Magnetic contactors	25 pcs	Relays
25 pcs	Timers	10 pcs	Magnetic contactors
25 pcs	Counters	5 pc.	Desktop/Laptop PC
5 pcs	Desktop/Laptop PC	5 pc.	Safety helmet
1 pc.	Safety helmet	5 pc.	Safety shoes
1 pc.	Safety shoes	5 pc.	Safety harness
1 pc.	Safety harness	5 pc.	Safety glasses/ goggles
1 pc.	Safety glasses/goggles	5 pc.	Ear plugs/ear muffs
1 pc.	Ear plugs/ear muffs	5 pcs	Gas mask
1 pc.	Gas mask		

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)		Amendments	
MATERIALS		MATERIALS	
QTY.	ITEM	QTY.	DESCRIPTION
1 spool	Solder lead	1 spool	Solder lead
1 spool	Shielded cable	1 spool	Shielded cable
1 lot	Terminal lugs	1 lot	Terminal lugs
1 lot	Terminal strips/blocks	1 lot	Terminal strips/blocks
25 pcs	Cotton gloves	10 pcs	Cotton gloves
1 lot	Plastic tubing	1 lot	Plastic tubing
1 lot	Quick-connect fittings	1 lot	Quick-connect fittings
25 rolls	Electrical tape	10 rolls	Electrical tape
1 lot	Wire markers	1 lot	Wire markers
1 lot	Cable ties	1 lot	Cable ties

3.6 Trainer's Qualification

Mechatronics Servicing NC IV Trainer's Qualification TQ IV

1. Must be a holder of TESDA Consumer Electronics Servicing NC II or equivalent
2. Must be a Certified Mechatronics Technician NC IV or Certified Mechatronics Engineer by a nationally-recognized body, or its equivalent in other countries.
3. Must have completed a Trainor's Training course or has been a technical trainor for at least 3 years.
4. Must have at least 2-years relevant industry experience.
5. Must be physically & mentally fit.

Mechatronics Servicing NC IV

- Holder of National TVET Trainer's Certificate (NTTC) Level 1 in Mechatronics Servicing NC IV
- Must have at least 4-years relevant industry experience

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Existing Promulgated Training Regulations (Board Resolution No. 2006-28)	Amendments
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.
Section 4. National Assessment and Certification Arrangements	
<p>4.1 To attain the National Qualification of Mechatronics Servicing NC IV, the candidate must demonstrate competency in all the units listed in Section 1. Successful candidates shall be awarded a National Certificate IV signed by the TESDA Director General.</p> <p>4.2 The qualification of Mechatronics Servicing NC IV can be attained through:</p> <p>4.2.1 Accumulation of Certificates of Competency (COCs) in all the following units of competencies:</p> <p>4.2.1.1 Install Mechatronics Devices</p> <p>4.2.1.2 Configure and Test Mechatronics Devices</p> <p>4.2.1.3 Develop Mechatronics Control Circuits and Software Application Programs</p> <p>4.2.1.4 Maintain and Repair Mechatronics Devices</p> <p>4.2.1.5 Commission Mechatronics Systems</p> <p>4.2.1.6 Diagnose and Troubleshoot Mechatronics Systems</p>	<p>2.1 To attain the National Qualification of Mechatronics Servicing NC IV, the candidate must demonstrate competency in all the units listed in Section 1. Successful candidates shall be awarded a National Certificate IV signed by the TESDA Director General.</p> <p>2.2 The qualification of Mechatronics Servicing NC IV may be attained through project-type assessment covering all the units of competency required in the qualification.</p> <p>2.3 Assessment shall focus on the core units of competency. The basic and common units shall be integrated or assessed concurrently with the core units.</p> <p>2.4 The following are qualified to apply for assessment and certification:</p> <p>2.4.1 Graduate of formal, non-formal, and informal including enterprise-based training programs.</p>

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<p>Successful candidates shall be awarded a Certificate of Competency (COC) in each of the core units.</p> <p>4.3 Upon 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.</p> <p>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.</p> <p>4.5 The following are qualified to apply for assessment and certification:</p> <p>4.5.1 Graduate of formal, non-formal, and informal including enterprise-based training programs</p> <p>4.5.2 Experienced workers (wage employed or self-employed)</p> <p>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)".</p>	<p>2.4.2 Experienced workers (wage employed or self-employed)</p> <p>2.5 Existing National Certificate (NC) of individuals in Mechatronics Servicing NC IV will still be in effect until such time that such NC will have expired. Individuals are advised to take the assessment for this amended TR on or before the expiration of such certificates.</p> <p>2.6 Individuals who already possess Certificate of Competency (COC) in Mechatronics Servicing NC IV are required to take the assessment for this amended TR on or before the expiration of their COCs.</p> <p>2.7 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)".</p>

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WHEREAS, during the 92nd TESDA Board Meeting on 16 December 2015 at 2:00 p.m., the TESDA Board considered the amendments and approved the promulgation of the amended Training Regulations for Mechatronics Servicing NC IV;

WHEREAS, the aforesaid Training Regulation is hereto annexed and made an integral part of this resolution;

NOW, THEREFORE, BE IT RESOLVED, AS IT IS HEREBY RESOLVED, that the TESDA Board in its meeting today, 16 December 2015 at 2:00 p.m., approves the aforementioned amendments to the Training Regulations for Mechatronics Servicing NC IV, as herein appended;

BE IT RESOLVED FINALLY that (1) copies of this Resolution and accompanying Training Regulations be published and disseminated to all concerned, and the same shall be effective fifteen (15) days upon publication;

(2) All programs registered under the current Training Regulations for Mechatronics Servicing NC IV must comply with requirements of the aforementioned Training Regulations as amended. The one-year period of registration under this amended Training Regulations shall commence on the date of effectivity of 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.

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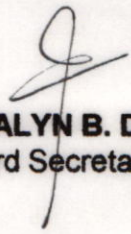
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Adopted this 16^h day of December 2015.

Attested by:



BR. ARMIN. A. LUISTRO FSC
Co-Chairperson, TESDA Board
Secretary, Department of Education



RINALYN B. DUMOL
Board Secretary VI