

Sesona Kibi

From: Lungisa Mpati <lungisa@emcol.co.za>
Sent: Wednesday, 27 November 2024 21:47
To: Sesona Kibi
Subject: RE: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

Good Evening

This is to confirm that I have attended the meeting and I had no personal interest on the matters before the committee

L Mpati
BSC Member

From: Sesona Kibi <sesona@emcol.co.za>
Sent: Wednesday, November 27, 2024 8:27 AM
To: Lester Moos <lester@emcol.co.za>; Kurt Flanagan <kflanagan@emcol.co.za>; Lungisa Mpati <lungisa@emcol.co.za>; Feronica de Vos <feronica@emcol.co.za>; Thareef Bloew <thareef@emcol.co.za>
Subject: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

Day Committee Members,

With reference to the BSC meeting held on the 26 November 2024 at 13:30 via SKYPE, attached is the final BSC report for:

RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

As agreed at the meeting all BSC members are required to do the following:

1. Declaration of Attendance of above-mentioned meeting by responding to this mail
I declare.
2. Declaration of Interest, Confidentiality & Impartiality by responding to this mail
 - *I declare that I did not purposefully unlawfully favour prejudice anyone in the procurement process (invitation, evaluation, recommendation or award of bid of the Code of Conduct C4.5 to C4.12 and C5.3 to C5.4 of the Public Service.*
 - *I, the undersigned, accept that all information, documentation and decisions regarding any matter serving before the Committee are confidential. I, therefore, undertake not to make known anything in this regard.*
 - *I also declare that I will not purposefully favour or prejudice anybody.***I declare.**
3. Declaration and Approval that attached BSC reports (minutes & approved Request for Approval) is a true reflection of the meeting held via SKYPE on 26 November 2024.
I declare.

Kind Regards

SESONA KIBI
SUPPLY CHAIN MANAGEMENT CLERK
Landline: +27 (041) 995 2051 | Fax: 041 995 2047
Email: sesona@emcol.co.za | Web-site: www.emcol.co.za

Sesona Kibi

From: lester moos <lester@emcol.co.za>
Sent: Wednesday, 27 November 2024 01:19
To: 'Sesona Kibi '
Subject: RE: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS
Attachments: MINUTES FOR RFQ-SCM EMC 26-24.pdf

Good day Kibi

Find this email as my declaration as I have nothing to declare

 <p>higher education & training Department: Higher Education and Training REPUBLIC OF SOUTH AFRICA</p>	 <p>Eastcape Midlands TVET College EMC creating new futures</p>	<p>Lester Moos Campus Manager : Graaff-Reinet Campus T: 049 891 0201 C: 0682728147 E: lester@emcol.co.za W: www.emcol.co.za</p>
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From: Sesona Kibi <sesona@emcol.co.za>
Sent: Wednesday, 27 November 2024 08:27
To: 'lester moos' <lester@emcol.co.za>; 'Kurt Flanagan' <kflanagan@emcol.co.za>; 'Lungisa Mpati' <lungisa@emcol.co.za>; 'feronica@emcol.co.za'; 'Thareef' <thareef@emcol.co.za>
Subject: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK

Day Committee Members,

With reference to the BSC meeting held on the 26 November 2024 at 13:30 via SKYPE, attached is the final BSC report for:

RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

As agreed at the meeting all BSC members are required to do the following:

Sesona Kibi

From: Thareef Bloew <thareef@emcol.co.za>
Sent: Wednesday, 27 November 2024 11:08
To: 'Sesona Kibi '
Subject: RE: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PR SYSTEMS

Good day

I declare to points 1, 2 and 3.

Regards

From: Sesona Kibi <sesona@emcol.co.za>
Sent: Wednesday, 27 November 2024 08:27
To: 'lester moos' <lester@emcol.co.za>; 'Kurt Flanagan' <kflanagan@emcol.co.za>; 'Lungisa Mpati' <lungisa@emcol.co.za> <feronica@emcol.co.za>; 'Thareef' <thareef@emcol.co.za>
Subject: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK

Day Committee Members,

With reference to the BSC meeting held on the 26 November 2024 at 13:30 via SKYPE, attached is the final BSC report for:

RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

As agreed at the meeting all BSC members are required to do the following:

1. Declaration of Attendance of above-mentioned meeting by responding to this mail
I declare.
2. Declaration of Interest, Confidentiality & Impartiality by responding to this mail
 - *I declare that I did not purposefully unlawfully favour prejudice anyone in the procurement process (invitation, evaluation, recommendation or C4.12 and C5.3 to C5.4 of the Public Service.*
 - *I, the undersigned, accept that all information, documentation and decisions regarding any matter serving before the Committee are confiden anything in this regard.*
 - *I also declare that I will not purposefully favour or prejudice anybody.*

I declare.

Sesona Kibi

From: Feronica de Vos <feronica@emcol.co.za>
Sent: Wednesday, 27 November 2024 12:00
To: Sesona Kibi
Subject: RE: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

Good day Kibi,

Kindly be advised that I declare to items 1, 2 & 3.

Thank you.

Regards

 <p>higher education & training Department: Higher Education and Training REPUBLIC OF SOUTH AFRICA</p>	 <p>Eastcape Midlands TVET College</p>	<p>Feronica De Vos Senior MIS Officer T: 041 996 1800 E: feronica@emcol.co.za W: www.emcol.co.za</p>
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From: Sesona Kibi <sesona@emcol.co.za>
Sent: Wednesday, 27 November 2024 08:27
To: Lester Moos <lester@emcol.co.za>; Kurt Flanagan <kflanagan@emcol.co.za>; Lungisa Mpati <lungisa@emcol.co.za>; Feronica de Vos <feronica@emcol.co.za>; Thareef Bloew <thareef@emcol.co.za>
Subject: Declaration: RFQ/SCM EMC 26/24 - RFQ/SCM EMC 26/24 - SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

Day Committee Members,

With reference to the BSC meeting held on the 26 November 2024 at 13:30 via SKYPE, attached is the final BSC report for:

RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS



BID SPECIFICATION COMMITTEE HELD ON TUESDAY, 26 NOVEMBER 2024

VIA SKYPE

AGENDA

1. OPENING AND WELCOME
2. ATTENDENCE
3. DECLARATION OF INTEREST
4. MATTERS TO BE TABLED

**4.1 RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING
DESK SYSTEMS**

- 4.1.1 TYPE OF PROJECT
- 4.1.2 CONFIRMATION OF BUDGET
- 4.1.3 ADVERTISEMENT
- 4.1.4 BID SPECIFICATIONS
- 4.1.5 ADDITIONAL REQUIREMENTS

5. RECOMMENDATION

6. CLOSURE

**BID SPECIFICATION COMMITTEE HELD ON TUESDAY, 26 NOVEMBER 2024
VIA SKYPE**

1. OPENING AND WELCOME

2. ATTENDANCE

The confirmation of attendance was done via SKYPE.
In addition, committee members were required to confirm attendance via email.

3. DECLARATION OF INTEREST

Committee members were required to formally declare interests via email.

4. MATTERS TO BE DISCUSSED

4.1 TYPE OF PROJECT

**RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING
DESK SYSTEMS**

4.2 CONFIRMATION OF BUDGET/FUNDS/APPROVAL

4.2.1. Financial Approval

*The budget was approved and signed by, Mr N Momoza, Deputy Principal Finance /
CFO on 21/11/2024 – see attached appendix.*

4.2.2. Accounting Officer Approval

Mr Van Heerden approved and signed on 22/11/2024 – see attached appendix.

4.3 ADVERTISEMENT

**RFQ/SCM EMC 26/24 – SOURCING OF SERVICE PROVIDER FOR TRAINING
DESK SYSTEMS**

4.4 BID SPECIFICATIONS

The Bid Specification and evaluation criteria are attached hereto

4.5 ADDITIONAL REQUIREMENTS

NONE



SCM-022

REQUEST FOR APPROVAL – RFQ / RFP / BID

- **Request for Quotation (RFQ) : R2000 – R200 000**
Reviewed by AD: SCM, campus/depart manager, end-user rep,
- **Request for Quotation (RFQ) : R200 001 – R500 000**
Reviewed by BEC, BAC, approval by Accounting Officer
- **Competitive bid: R500 001 – R1 000 000**
Reviewed by BEC, BAC, approval by Accounting Officer
- **Competitive bid: R1 000 000 – And above**
Reviewed by BEC, BAC, approval by Accounting Officer

SOURCING OF SERVICE PROVIDER FOR TRAINING DESK SYSTEMS

Procurement method: RFQ RFP BID Estimated delivery date: 30 April 2025

Shorter Bidding 3DAY 7DAY

1. BACKGROUND

The merSETA and Eastcape Midlands TVET College (EMC) signed a Memorandum of Understanding (MOU) on October 31, 2018 to establish a 4th Industrial Revolution: Eastcape Midlands TVET College Learning Factory (EMCOL-LF) to support the institutional strategic goal of teaching unemployed youth, semi-skilled and skilled employees in technologies connected to the Fourth Industrial Revolution

2. PURPOSE

To source service provider for the mechatronic training system which includes physical infrastructure, controlling software, mechanical and electrical diagrams supply, data collection, training, installation, maintenance, support and curriculum for technologies.

3. SPECIFICATION(S)

Detailed specifications and conditions attached for:

- Electronic Training Desk
- Pneumatic Training Desk



COMMENT:

13. ACCOUNTING OFFICER/AUTHORISED DELEGATE

(copy of delegation to be attached)

Based on the above background approval is requested for the **Request for Bid:**

NOT APPROVED / APPROVED BY:



**ACCOUNTING OFFICER or
AUTHORISED DELEGATE**

25/11/2024
DATE

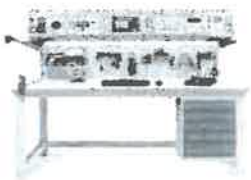
COMMENTS:





Details Specifications

A. Electronic Training Desk

EXAMPLE	QUANTITY REQUIRED
	<p>1 x Electronic Training Desk</p>

Electronic Training Desk Specifications

Specifications

Frame

- Dimensions (l x b x h) : 1800 x 1330 x 800mm
- 32mm Formica Folkstone Grey top : 1710 x 800mm
- Extruded aluminium frame with instrument and AIO PC holder fitted with Electrical panel isolator, overload breaker and RCB. Storage cabinet mounted below the desk.

Equipment

- Equipped with the following Test Equipment mounted in the frame:
 - 1 x Digital Oscilloscope (Supplied with probes)
 - 2 channels - 100 MHz analog channel bandwidth
 - Sampling rate up to 1 GSa/s
 - 8M memory depth
 - Vertical range 2mV/div ~ 10V/div
 - Vertical resolution: 8bit
- 1 x Dual Power supply 0 to 30 Volts 3Aamp with CC and CV mode
- 1 x Signal Generator
 - Frequency range: 1µHz - 40MHz
 - 300MSa/s sampling rate
 - 16-bit vertical resolution
 - 4.3-Inch colour TFT LCD screen
 - Modulation: AM, DSB - AM, FM, PM, ASK, FSK and PSK, BPSK, QPSK, 3 FSK, 4 FSK, OSK and PWM, etc.
 - 1µHz frequency resolution
- 1 x Digital Multimeter
 - 4 1/2 Digits Bench-Type Digital Multimeter
 - 3.5 Inch (480x320) high resolution LCD
 - 55000 counts, DC voltage accuracy up to 0.05%
 - Up to 60 readings per second
 - True RMS AC voltage / current measurement
- 1 x LCR Meter



- 5 Digit Basic Accuracy 0.1%
- Range L 0.001 μ H - 9999H
- Range C 0.001pF - 9999 μ F
- Range R 0.0001 Ω - 99.99M Ω
- 1 x CPI-C070WR4C (7" Industrial Raspberry Pi Touch Panel PC) With CM4 Fitted with I/O breakout board.
- 1 x All in one PC swivel mounted on the frame with the following specification:
 - Intel Core I5
 - 16 Mb RAM
 - 512 Gb SSD drive
 - 21" Touch Screen Resolution 1920x1080
 - Full size keyboard and mouse
 - Network adaptor and USB ports
 - Blue Tooth
 - Webcam
 - Microsoft Windows 11 Professional 64-bit operating system

Supplied with the following equipment:

- 1 x Temperature controlled solder extractor and soldering iron
 - Vacuum and blower operation
 - Temperature control of solder extractor with display
 - Temperature control of Soldering Iron with display
 - Safe for use on static sensitive components
 - Vane-type vacuum pump
 - Connection for optional air output
 - Twin spring safety holder with cleaning sponge
 - Clog-resistant desoldering handpiece with glass tube to collect solder
 - Vacuum - 268 mbar (22"Hg), Flow Rate 1,54m³/hour(0,91CFM)
 - Temp. Range - Solder Extractor 200°C~450°C, Soldering Iron 200°C to 420°C
- 1 x SMD hot air rework station 700 watt supplied with 3 different size air nozzles.
- 1 x 115mm Diagonal side cutter
- 1 x Bent nose precision plier approx. 30mm x 10mm at 58 degrees
- 1 x Precision 7-piece screwdriver set
- 1 x Hex key set folding 1.5mm to 10mm
- 1 x Torx bit folding set (T9 to T40)
- 1 x Network crimping tool RJ11 – RJ12 – RJ45 x Screwdriver set 6 - piece
- 1 x Bread board approx. size 200mm x 75mm
- 1 x Manual solder sucker
- 1 Hot air gun 200watt
- 1 x Long nose plier 115mm
- 1 x Junior hacksaw
- 1 x Mini PCB vice
- 1 x Scriber
- 1 x 300mm Steel rules
- 1 x Logic Probe
- 1 x Wire stripper
- 1 x Resistor decade box 1 ohm to 11.111 Mohm 0.5 watt
- 1 x Capacitance decade box 100pF to 11.111 uF
-

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- 1 x Digital Trainer with the following specification:
- Solderless breadboard
- Variable DC power
 - Positive output voltage: 0 - +15V±10%
 - Negative output voltage: 0 - -15V±10%
 - Maximum output current: 300 mA
- Fixed power supply
 - Positive output voltage: +5V±10% Maximum output current: 1Amp
 - All DC power supplies with short circuit protection
- Function generator
 - Frequency ranges (6 ranges): 0.1Hz - 200 KHz
 - Sine wave output: 0 - 5 Vpp 10% variable
 - Triangle wave output: 0 - 5Vpp 10% variable
 - Square wave output: 0 - 15 Vpp 10% variable
 - TTL mode output: +5V 10%
- Digital voltmeter
 - 3½ digits LED display
 - 0 - 19.99V full scale
 - Input impedance: 10Mohm
- Universal counter
 - Frequency range: 1Hz - 99.999999MHz
 - Period range 0.01us - 99999999us
 - Input signal: TTL or CMOS level
 - 8-digit 7-segment LED display
- 8 x buffered LED displays
- 8 x data switches
- 2 x function switches
- 2 x pulse switches


Supplied with the following kits and consumables:

- 1 x NEE532 Stereo preamplifier module
- 1 x Audio Amplifier (Discrete components)
- 1 x AM-FM transistorised radio
- 1 x 4 Channel running light generator
- 1 x Car alarm Kit (voltage drop method)
- 30 x Arduino starter kit UNO R3 latest Rev with shields
- 5 x Roll solder wire 0.9mm 60/40 500 gram
- 5 x Veroboard 300mm x 100mm
- 1 x Metal Film Resistors 2600pcs 130 Values 1/4W -1% in enclosure
- 50 x Crocodile leads 22mm x 300mm
- 100 pcs 120mm length jumper cable for breadboard
- 20 pcs 150mm length jumper cable for breadboard
- 10 pcs 200mm length jumper cable for breadboard
- 10 pcs 240mm length jumper cable for breadboard
- 1 x Heat shrink kit 1.5 to 5mm

H



B. Pneumatic Training Desk

EXAMPLE	QUANTITY REQUIRED
	<p>2x Pneumatic Training Desk</p>

Pneumatic Training Desk Specifications

Frame

- Dimensions (l x b x h) : 1800 x 800 x 1820mm
- 32mm Formica Folkstone Grey top: 1800 x 800mm
- 1 x Extruded Frame with Module Rack and LCD Screen Holder (Double Sided)
- Frame to be double sided for 2 students to work on one station
- The following quantities for training parts are for a double-sided station (The list must not be duplicated.)
- No compressor required

Frame to be supplied with the following modules and equipment:

- 2 x 24V Power Supply 240W (1 on each side) Frame mounted
- 2 x E-Stop Safety Module fitted with safety relay (1 on each side) Frame mounted
- 2 x 24V and OV Distribution Module (1 on each side) Frame mounted
- 2 x Banana Plug cable holder (1 on each side) Frame mounted
- 4 x Signal input, electrical Frame mounted
- 4 x Relay, three-fold Frame mounted
- 2 x Time relay, two-fold Frame mounted
- 2 x Preset counter, electronic Frame mounted

Equipment for basic pneumatic training:

- 4 x 3/2-way valve with pushbutton actuator, normally closed
- 2 x 3/2-way valve with pushbutton actuator, normally open
- 2 x 5/2-way valve with selector switch
- 2 x 3/2-way valve with selector switch, normally closed
- 4 x 3/2-way roller lever valve, normally closed
- 4 x Proximity sensor, pneumatic, with cylinder attachment
- 2 x Pneumatic timer, normally closed
- 2 x Pressure sequence valve
- 2 x 3/2-way valve, pneumatically actuated at one end
- 2 x 5/2-way valve, pneumatically actuated at one end
- 6 x 5/2-way double pilot valve, pneumatically actuated at both ends
- 2 x Shuttle valve (OR)
- 4 x Dual-pressure valve (AND)
- 2 x Quick-exhaust valve
- 4 x One-way flow control valve
- 2 x Single-acting cylinder
- 2 x Double-acting cylinder
- 2 x Start-up valve with filter control valve



- 2 x Pressure regulator valve with gauge
- 4 x Pressure gauge
- 2 x Manifold
- 4 x Plastic tubing, 4 x 0.75 Blue 10 m
- 4 x Plastic tubing, 4 x 0.75 Red 10 m

Equipment set for advanced pneumatic training:

- 4 x 3/2-way valve with pushbutton actuator, normally closed
- 2 x 3/2-way valve with mushroom-head emergency switch, normally open
- 2 x 3/2-way roller lever valve with idle return, normally closed
- 2 x Back pressure valve
- 8 x 3/2-way valve, pneumatically actuated at one end
- 4 x 5/2-way double pilot valve, pneumatically actuated at both ends
- 4 x Plastic tubing, 4 x 0.75 silver 10 m
- 8 x Shuttle valve (OR)
- 6 x Dual-pressure valve (AND)
- 2 x Pneumatic timer, normally open
- 2 x Pneumatic preset counter
- 2 x Stepper module
- 4 x One-way flow control valve
- 4 x non-return valve, delockable
- 4 x Double-acting cylinder

Equipment set for Basic Electropneumatic Training:

- 2 x Limit switch, electrical, left-actuated
- 2 x Limit switch, electrical, right-actuated
- 2 x Proximity sensor, optical, M12
- 4 x Proximity sensor, electronic, with cylinder mounting
- 4 x 3/2-way solenoid valve with LED, normally closed
- 2 x 5/2-way solenoid valve with LED
- 4 x 5/2-way double solenoid valve with LED
- 2 x Pressure sensor with display
- 8 x One-way flow control valve
- 2 x Single-acting cylinder
- 4 x Double-acting cylinder
- 2 x Start-up valve with filter control valve
- 2 x Manifold
- 2 x Plastic tubing, 4 x 0.75 Blue 10 m
- 2 x Plastic tubing, 4 x 0.75 Blue 10 m

Equipment set for Advanced Electropneumatic Training:

- 2 x Proximity sensor, inductive, M12
- 2 x Proximity sensor, capacitive, M12
- 2 x Valve terminal with 4 valve slices (MMJJ)
- 4 x Non-return valve, delockable

Equipment set for Vacuum Technology:

- 2x Air pressure reservoir, 0.4 litre
- 2x Pressure switch, 0 – -1 bar

H



- 2x Vacuum gauge
- 2x Flow control valve
- 2x Vacuum generator, type H
- 2x Vacuum generator, type L
- 2x Non-return valve
- 2x non-return valve, delockable
- 2x Suction gripper 20 SN
- 2x Suction gripper 30 SN
- 2x Suction gripper 20 SS
- 2x Suction gripper 30 SS
- 4x Suction gripper 20 CS with vacuum security valve
- 2x Suction gripper 4x20 ON

Equipment set for PLC Training:

PLC must be able to mount into frame

2 x PLC with the following base specifications:

- Working memory 100Kb, CPU processing time 0.085uS/instruction, Supply Voltage 24Vdc, Retentive data area 10Kb, with RTC
- Digital Inputs 14 (6 x High speed counting) + 8 via add on card (22 Inputs)
 - Digital Outputs transistor 10 (4 x High Speed with 100Khz pulse train output)
 - + 8 via add on card (18 Outputs)
 - Analog Inputs 2 (Voltage 0 to +10V)
 - Analog Outputs 2 (10 Bit resolution)
 - Interface – Profinet and 1 x RS232 port via an add on card

Equipment set for Sensors and Transducers Training:

With brackets to mount in extruded slots on the frame

- 2 x Inductive Proximity Sensor 18mm Barrel Sn = 8mm PNP NO
- 2 x Magnetic Sensor Sn = 60mm PNP NO
- 2 x Ultrasonic Sensor with 1 to 10V output Sn 40 to 500mm
- 2 x Diffused Reflection sensor 200mm IO link PNP
- 2 x Retro reflective Sensor 4m IO link with reflector
- 2 x Tru Beam Transmitter
- 2 x Tru Beam Receiver PNP
- 2 x Incremental Encoder
- 2 x Temperature Transmitter -50 to 150°C
- 2 X LVDT with 0 to 10V output 0 to 200mm
- 2 x 4 Port IO link master

Additional equipment required:

- 2 x All in one PC with swivel arm mounting on the frame with the following specifications:
 - Intel Core i5
 - 16 Mb RAM
 - 512 Gb SSD drive
 - 21" Touch Screen Resolution 1920x1080
 - Full size keyboard and mouse
 - Network adaptor and USB ports
 - Blue Tooth
 - Webcam
 - Microsoft Windows 11 Professional 64-bit operating system

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Connectors:

- 20 x red 50 mm 4mm Banana plug lead (safety type)
- 20 x blue 50 mm 4mm Banana plug lead (safety type)
- 16 x black 50 mm 4mm Banana plug lead (safety type)
- 16 x red 300 mm 4mm Banana plug lead (safety type)
- 16 x blue 300 mm 4mm Banana plug lead (safety type)
- 36 x black 300 mm 4mm Banana plug lead (safety type)
- 16 x red 500 mm 4mm Banana plug lead (safety type)
- 16 x blue 500 mm 4mm Banana plug lead (safety type)
- 36 x black 500 mm 4mm Banana plug lead (safety type)
- 4 x red 1000 mm 4mm Banana plug lead (safety type)
- 6 x blue 1000 mm 4mm Banana plug lead (safety type)
- 4 x black 1000 mm 4mm Banana plug lead (safety type)
- 2 x red 1500 mm 4mm Banana plug lead (safety type)
- 2 x blue 1500 mm 4mm Banana plug lead (safety type)
- 2 x black 1500 4mm Banana plug lead (safety type)

Curriculum to be developed together with EMC.

C. Hydraulic Training Desk

EXAMPLE	QUANTITY REQUIRED
	<p>2x Hydraulic Training Desk</p>

Hydraulic Training Desk Specifications

Frame

- Dimensions (l x b x h) : 1800 x 800 x 1820mm
- 32mm Formica Folkstone Grey top: 1800x 800mm
- 1 x Extruded Frame with Module Rack and LCD Screen Holder
- Frame to be double sided for 2 students to work on one station
- The following quantities for training parts are for a double-sided station (The list must not be duplicated.)
- 2 x Hydraulic power pack with a constant-displacement pump mounted on the frame
 - External gear motor with pressure relief valve adjustable from 0 – 6 MPa (0 – 60 bar)
 - Operating pressure: 6 MPa (60 bar)
 - Motor: 230Vac, 650 watt single-phase with overload protection, and ON/OFF switch
 - Delivery rate 2.5 litres per minute
 - Tank volume 5 litres, with temperature display, drain screw
 - Self-sealing coupling nipples for P and T
 - Plug socket for unpressurized return
 - Connecting flange for measuring container return



- 2 x 24V Power Supply
- 2 x E-Stop Safety Module fitted with safety relay
- 2 x 24V and OV Distribution Module
- 2 x Hydraulic tube holder
- 2 x Banana Plug cable holder

Equipment for Basic Hydraulic Training

- 2 x Pressure Relief valve
- 2 x 2-Way Flow Control valve
- 2 x 1-Way Flow Control valve
- 2 x Non return valve, Delockable
- 2 x Non return valve, 6 bar Opening pressure
- 2 x 4/2 Way hand lever valve, spring return
- 2 x 4/3 Way hand lever valve, relieving mid position
- 2 x 4/3 Way hand lever valve closed mid-position
- 2 x Shutoff valve
- 2 x Differential cylinder 16/10/200 with cover and mounting kit
- 2 x Weight – 9Kg
- 2 x Hydraulic motor
- 2 x T Distributor
- 2 x 4 Way distributor with pressure gauge
- 6 x Pressure Gauges
- 2 x Flow sensor

Equipment for Advanced Hydraulic Training

- 2 x Pressure relief valve, compensated
- 2 x 3 Way pressure reducing valve
- 2 x Flow dividing valve
- 2 x 2/2 Way stem actuated valve, convertible
- 6 x Non return valve, 6 bar opening pressure
- 2 x Diaphragm accumulator with shutoff block
- 2 x Differential cylinder 16/10/200 with cover and mounting kit
- 10 x T distributor

Equipment for Electrohydraulic Training

- 2 x Pressure relief valve
- 2 x 2 Way flow control valve
- 2 x 1 Way flow control valve
- 2 x Non return valve, 6Bar opening pressure
- 2 x 4/2 Way solenoid valve 24Vdc, spring return
- 2 x 4/3 Way solenoid valve, closed mid position
- 2 x 4/3 Way double solenoid valve, detenting
- 2 x Shutoff valve
- 2 x Weight 9Kg
- 4 x Differential cylinder 16/10/200 with cover and mounting kit
- 4 x T Distributor
- 4 x 4 Way Distributor with pressure gauge
- 4 x Pressure gauges
- 2 x Electronic pressure switch



- 4 x Relays
- 2 x Signal input electrical
- 2 x Limit switch, electrical, left activated
- 2 x Limit switch, electrical, right activated
- 4 x Proximity Sensor M12
- 2 x Timer relay
- 2 x Preset electronic counter
- 2 x 4/3 Way solenoid valve, relieving mid-position
- 2 x Proximity Sensor, inductive type M12

Equipment for Proportional Training

- 2 x Relay Control box for frame
- 2 x Proportional amplifier
- 2 x Set point card
- 2 x Signal input box for frame
- 4 x Proximity sensor, inductive M12
- 2 x 4/3 Way proportional valve
- 2 x 4/2 Ay solenoid valve, spring return
- 2 x Proportional pressure relief valve
- 2 x Pressure filter
- 2 x pressure balance (Proportional flow control valve)

Additional equipment required:


- 2 x All in one PC with swivel arm mounting on the frame with the following specifications:
 - Intel Core I5
 - 16 Mb RAM
 - 512 Gb SSD drive
 - 21" Touch Screen Resolution 1920x1080
 - Full size keyboard and mouse
 - Network adaptor and USB ports
 - Blue Tooth
 - Webcam
 - Microsoft Windows 11 Professional 64-bit operating system
- 20 x red 50 mm 4mm Banana plug lead (safety type)
- 20 x blue 50 mm 4mm Banana plug lead (safety type)
- 16 x black 50 mm 4mm Banana plug lead (safety type)
- 16 x red 300 mm 4mm Banana plug lead (safety type)
- 16 x blue 300 mm 4mm Banana plug lead (safety type)
- 36 x black 300 mm 4mm Banana plug lead (safety type)
- 16 x red 500 mm 4mm Banana plug lead (safety type)
- 16 x blue 500 mm 4mm Banana plug lead (safety type)
- 36 x black 500 mm 4mm Banana plug lead (safety type)
- 4 x red 1000 mm 4mm Banana plug lead (safety type)
- 6 x blue 1000 mm 4mm Banana plug lead (safety type)
- 4 x black 1000 mm 4mm Banana plug lead (safety type)
- 2 x red 1500 mm 4mm Banana plug lead (safety type)
- 2 x blue 1500 mm 4mm Banana plug lead (safety type)
- 2 x black 1500 4mm Banana plug lead (safety type)

H



- 14 x Hydraulic hose with QRC 600mm
- 6 x Hydraulic hose with QRC 1000mm
- 4 x Hydraulic hose with QRC 1500mm
- Curriculum content to be developed together with EMC

D. Technology Training Desk

EXAMPLE	QUANTITY REQUIRED
	<p>1x Technology Training Desk</p>
<p align="center">Technology Training Desk</p> <p>For the teaching of automation and control devices including PLC programming.</p> <p>Frame</p> <p><u>Dimensions (l x b x h) : 2000 x 680 x 1900mm</u> 32mm Formica Folkstone Grey top</p> <p>Basic 3 tier frame to hold A4 sized modules. Frame to be manufactured from aluminum profile. A4 Module frame holding size (3 tier) Desktop size and height L = 2000mm H = 1mm W = 500mm Frame to house the following equipment on the side of the frame 3 Phase 380 Volt supply fitted with 10A RCBO device with 4mm safety banana plugs output connections 1 Phase 220 Volt supply fitted with 10A RCBO device with 4mm safety banana plugs and 6 x IEC C13 sockets 1 x 24V 5A power supply with 4mm banana plug sockets 1 x 3 Phase isolator 1 x 5V 1A power supply with 4mm banana plug sockets 1 x +15 -15 Volt 800mA Power Supply with 4mm Banana plug sockets 1 x 0 to 10 V process Indicator 1 x 0 to 20mA process Indicator</p>	



To be supplied with the following A4 training modules

All inputs and outputs where possible must be connected via 4mm safety banana plugs

1. Light Curtain (Transmitter and receiver mounted to different modules) IFM OY051S 160mm CAT.
Module size Transmitter 297mm x 150mm
Receiver 297mm x 280mm
2. E Stop + Safety relay (PNOZ X1).
Module Size 297mm x 280mm
3. Push Buttons x 4 Push to make Spring return (1 x NO + 1 x NC contact).
Module size 297mm x 150mm
4. Push Buttons x 4 Push to make - Push to Release (1 x NO + 1 x NC contact).
Module size 297mm x 150mm
5. Selector Switches x 4 (1 x NO + 1 x NC contact).
Module size 297mm x 150mm
6. Like "Siemens" HMI 7 " KTP700 with Profinet and USB port.
Module Size 297mm x 280mm
7. Like "Siemens" PLC S7-1212C DC/DC/DC with 8 Digital Inputs, 6 Digital Outputs (6ES7212-1AE40-0XB0, Add On Modules: Digital I/O 8 Inputs, 8 Outputs Module (6ES7223-1BH32-0XB0), Analog Module (6ES7234-4HE32-0XB0).
Module size 297mm x 550mm
8. Like "Siemens" PLC S7-1511-1PN (6ES7511-1CK01-0AB0) with 16 Input and 16 Output module, 5 Analog inputs, 2 Analog outputs.
Module size 297mm x 550mm
9. Two Hand Control with 2 x ABB Push Balls and Safety Relay.
Module Size 297mm x 280mm
10. Contactors 24 V x 3 with 2 x NO contacts and 2 x NC contacts on each contactor. Module Size 297mm x 280mm
11. 24 V relays x 2 (Finder relays 24Vdc 60.12.9.024.0040).
Module size 297mm x 150mm
12. Single lane bridge PLC application module for PLC training Single Lane bridge Traffic signal to control flow of vehicles crossing the bridge. Vehicle counters to be fitted on all lanes entering and exiting the bridge. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.



Module Size 297mm x 280mm

13. Traffic control PLC application module for PLC training. T junction configuration. Traffic signals to control the flow of traffic. To include pedestrian crossing on all lanes. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.
Module Size 297mm x 280mm.
14. Profinet I/O link master IFM AL1100.
Module size 297mm x 150mm
15. Temperature sensor I/O link IFM TA2105.
Module size 297mm x 150mm
16. Distance sensor I/O link IFM 05D150.
Module Size 297mm x 280mm
17. Ethernet switch Siemens 8 Port (6GK5008-0BA10-1AB2).
Module size 297mm x 150mm
18. Residual circuit breaker 3 phase 25 Amp Sensitivity 30mA.
Module size 297mm x 150mm
19. Timers 2 x Multi-function timers GIC 1CMDTO.
Module size 297mm x 150mm
20. 22mm Indicator Lamps 24V dc x 5 (red, orange, green, blue, white).
Module size 297mm x 150mm
21. Motor overload switch 3 phase 0.45 to 0.63 Amps Siemens 3RV2011-0GA20.
Module size 297mm x 150mm
22. Rotary encoder (Sick 1024 PPR) (incremental type) To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.
Module size 297mm x 150mm
23. Tower light I/O link TLF100P3AKQP 3 segments.
Module size 297mm x 150mm

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24. Stepper motor - Stepper motor size NEMA 17 with driver, ball screw, linear guide and limit switches for over travel. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.
25. VSD Drive 220 Volt single phase supply for 3 phase 0.18 Kw motor (Motor to be supplied) Schnieder Drive ATV320U02M2C.
Module Size 297mm x 280mm
26. Magnetic coded safety switch IFM MN503S.
Module size 297mm x 150mm
27. Linear displacement transducer (resistive) PK-M-0100 L000X000X00.
Module Size 297mm x 280mm
28. Proximity Sensors (capacitive, magnetic, ferrous metals)
Module Size 297mm x 280mm
29. Angle gauge Accustar 02111002-000 with analog output.
Module size 297mm x 150mm

Banana plug leads:

- 60 x 300mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)
- 60 x 500mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)
- 60 x 1000mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)
- 60 x 1500mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)

- 20 RED 19mm Jumper
- 20 BLUE 19mm Jumper

- 1 x 24Mb memory card for S7-1511 PLC
- 2 x Electric motor single phase capacitor start 0.18kw 4 pole 230v foot mount
- 2 x Electric motor single phase capacitor run 0.18kw 4 pole 230v foot mount
- 2 x Electric motor single phase capacitor start/run 0.18kw 4 pole 230v foot mount
- 2 x 3 phase Electric braked foot mount 0.37kw 4 pole
- 2 x Slip ring motor 0.27kw 400v 4 pole, Excitation voltage 95v

All motor connections to be terminated with 4mm colour coded safety banana plugs.
Motor is to be attached to an extruded aluminium profile with rubber feet.
Motor shaft is to be enclosed.

HA



Annexure A: Mandatory Requirements

Description of Appendix	Requirement	Circle yes if submitted	
		Yes	No
RFQ Document	Submission of a detailed and signed quotation	Yes	No
Technical specifications and pricing	Pricing according to the technical specification	Yes	No
Proof of Bank Account	Signed letter from the Bank (not older than 3 Months)	Yes	No
Company registration documents	Supply Company registration documents	Yes	No
Tax PIN	PIN Status certificate	Yes	No
BBBEE certification	A valid BBBEE certificate / An original Sworn-In Affidavit	Yes	No
Declaration of Interest	SBD 4 SBD 6.1 SBD 6.2 SBD 8 SBD 9	Yes	No
CSD	Supply proof of registration with the National Treasury	Yes	No
ID Copy of Company's director(s)	Supply with certified copy of IDs	Yes	No
Complete and sign the official document	Request for proposal form to be completed, signed and email back	Yes	No
Eligible Companies	OEM's or authorised resellers or distributors. Must provide signed letter that you are an authorised reseller/distributor of the product in South Africa	Yes	No



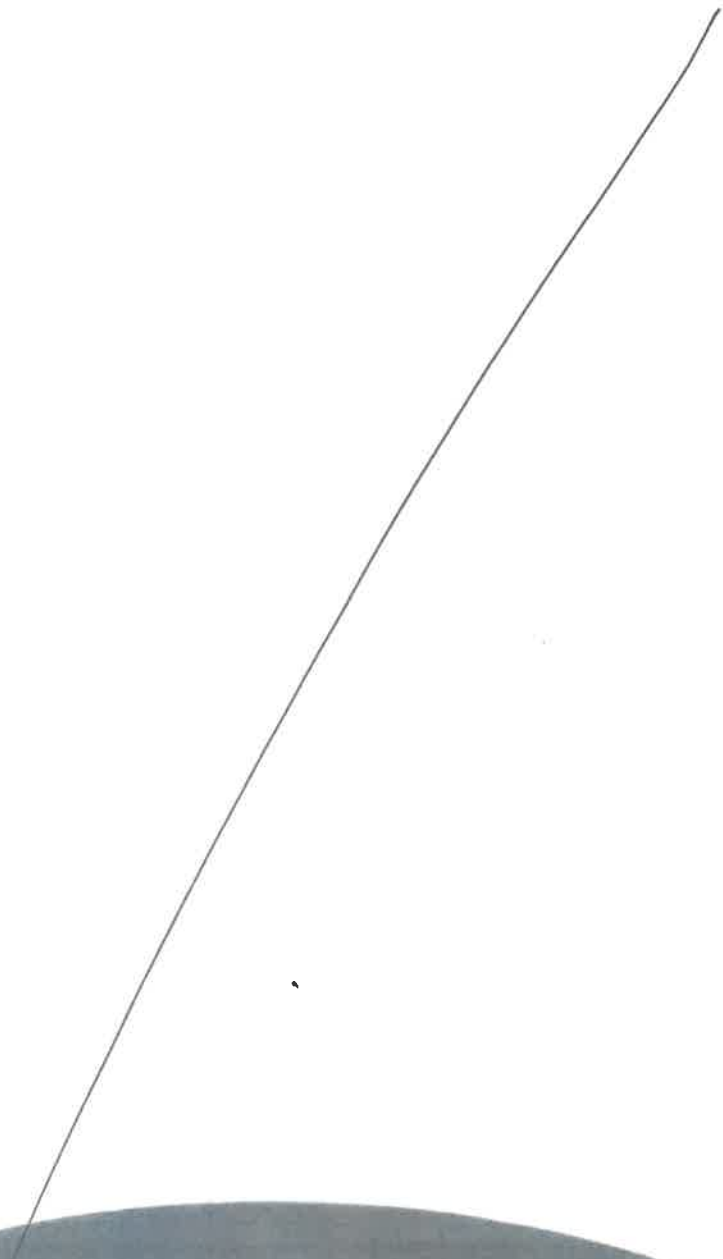
higher education
& training
Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA



Eastcape
Midlands
TVET College

creating new futures

Costing Proposal	Detail quote separating Labour from Equipment costs	Yes	No
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Annexure B: Functional criteria

Electronic Training Desk

Functional/Technical criteria	Weighting	0	5	7	10
<p>Specifications</p> <p>Frame</p> <ul style="list-style-type: none"> • Dimensions (l x b x h) : 1800 x 1330 x 800mm • 32mm Formica Folkstone Grey top : 1710 x 800mm • Extruded aluminium frame with instrument and AIO PC holder fitted with Electrical panel Isolator, overload breaker and RCB. Storage cabinet mounted below the desk. <p>Equipment</p> <ul style="list-style-type: none"> • Equipped with the following Test Equipment mounted in the frame: <ul style="list-style-type: none"> ○ 1 x Digital Oscilloscope (Supplied with probes) ○ 2 channels - 100 MHz analog channel bandwidth ○ Sampling rate up to 1 GSa/s ○ 8M memory depth ○ Vertical range 2mV/div ~ 10V/div ○ Vertical resolution: 8bit • 1 x Dual Power supply 0 to 30 Volts 3Aamp with CC and CV mode • 1 x Signal Generator <ul style="list-style-type: none"> ○ Frequency range: 1µHz - 40MHz ○ 300MSa/s sampling rate ○ 16-bit vertical resolution ○ 4.3-inch colour TFT LCD screen ○ Modulation: AM, DSB - AM, FM, PM, ASK, FSK and PSK, BPSK, QPSK, 3 FSK, 4 FSK, OSK and PWM, etc. ○ 1µHz frequency resolution • 1 x Digital Multimeter <ul style="list-style-type: none"> ○ 4 1/2 Digits Bench-Type Digital Multimeter 	50%	Meeting none of the specifications	Meets <50% of the machine specifications	Meets > 50% of the specifications, but not all	Meets all of the specifications

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<ul style="list-style-type: none"> ○ 3.5 inch (480x320) high resolution LCD ○ 55000 counts, DC voltage accuracy up to 0.05% ○ Up to 60 readings per second ○ True RMS AC voltage / current measurement <ul style="list-style-type: none"> ● 1 x LCR Meter <ul style="list-style-type: none"> ○ 5 Digit Basic Accuracy 0.1% ○ Range L 0.001µH - 9999H ○ Range C 0.001pF - 9999µF ○ Range R 0.0001Ω - 99.99MΩ ● 1 x CPI-C070WR4C (7" Industrial Raspberry Pi Touch Panel PC) With CM4 Fitted with I/O breakout board. 			
<ul style="list-style-type: none"> ● 1 x All in one PC swivel mounted on the frame with the following specification: <ul style="list-style-type: none"> ○ Intel Core i5 ○ 16 Mb RAM ○ 512 Gb SSD drive ○ 21" Touch Screen Resolution 1920x1080 ○ Full size keyboard and mouse ○ Network adaptor and USB ports ○ Blue Tooth ○ Webcam ○ Microsoft Windows 11 Professional 64-bit operating system 			
<p>Supplied with the following equipment:</p> <ul style="list-style-type: none"> ● 1 x Temperature controlled solder extractor and soldering iron <ul style="list-style-type: none"> ○ Vacuum and blower operation ○ Temperature control of solder extractor with display ○ Temperature control of Soldering Iron with display ○ Safe for use on static sensitive components ○ Vane-type vacuum pump ○ Connection for optional air output ○ Twin spring safety holder with cleaning sponge ○ Clog-resistant desoldering handpiece with glass tube to collect solder ○ Vacuum - 268 mbar (22"Hg), Flow Rate 1,54m³/hour(0,91CFM) 			



<ul style="list-style-type: none">○ Temp. Range - Solder Extractor 200°C~450°C, Soldering Iron 200°C to 420°C● 1 x SMD hot air rework station 700 watt supplied with 3 different size air nozzles.● 1 x 115mm Diagonal side cutter● 1 x Bent nose precision plier approx. 30mm x 10mm at 58 degrees● 1 x Precision 7-piece screwdriver set● 1 x Hex key set folding 1.5mm to 10mm● 1 x Torx bit folding set (T9 to T40)● 1 x Network crimping tool RJ11 – RJ12 – RJ45 1 x Screwdriver set 6 - piece● 1 x Bread board approx. size 200mm x 75mm● 1 x Manual solder sucker● 1 Hot air gun 200watt● 1 x Long nose plier 115mm● 1 x Junior hacksaw● 1 x Mini PCB vice● 1 x Scriber● 1 x 300mm Steel rules● 1 x Logic Probe● 1 x Wire stripper● 1 x Resistor decade box 1 ohm to 11.111 Mohm 0.5 watt● 1 x Capacitance decade box 100pF to 11.111 uF● 1 x Digital Trainer with the following specification: Solderless breadboard● Variable DC power<ul style="list-style-type: none">○ Positive output voltage: 0 - +15V±10%○ Negative output voltage: 0 - -15V±10%○ Maximum output current: 300 mA● Fixed power supply<ul style="list-style-type: none">○ Positive output voltage: +5V±10% Maximum output current: 1Amp○ All DC power supplies with short circuit protection● Function generator<ul style="list-style-type: none">○ Frequency ranges (6 ranges): 0.1Hz - 200 KHz					
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<ul style="list-style-type: none">o Sine wave output: 0 - 5 Vpp 10% variableo Triangle wave output: 0 - 5Vpp 10% variableo Square wave output: 0 - 15 Vpp 10% variableo TTL mode output: +5V 10%• Digital voltmeter<ul style="list-style-type: none">o 3½ digits LED displayo 0 - 19.99V full scaleo Input impedance: 10Mohm• Universal counter<ul style="list-style-type: none">o Frequency range: 1Hz - 99.999999MHzo Period range 0.01us - 99999999uso Input signal: TTL or CMOS levelo 8-digit 7-segment LED display• 8 x buffered LED displays• 8 x data switches• 2 x function switches• 2 x pulse switches <p>Supplied with the following kits and consumables:</p> <ul style="list-style-type: none">• 1 x NE5532 Stereo preamplifier module• 1 x Audio Amplifier (Discrete components)• 1 x AM-FM transistorised radio• 1 x 4 Channel running light generator• 1 x Car alarm Kit (voltage drop method)• 30 x Arduino starter kit UNO R3 latest Rev with shields• 5 x Roll solder wire 0.9mm 60/40 500 gram• 5 x Veroboard 300mm x 100mm• 1 x Metal Film Resistors 2600pcs 130 Values 1/AW -1% in enclosure• 50 x Crocodile leads 22mm x 300mm• 100 pcs 120mm length jumper cable for breadboard• 20 pcs 150mm length jumper cable for breadboard• 10 pcs 200mm length jumper cable for breadboard• 10 pcs 240mm length jumper cable for breadboard• 1 x Heat shrink kit 1.5 to 5mm					
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Technical Capability	40%	No experience or capability are demonstrated	Limited experience and capabilities demonstrated	NA	Relevant capabilities and experience are demonstrated
<p>Organisation should demonstrate experience in constructing similar equipment, providing case studies or references for similar projects.</p> <p>Concept Design Provide a concept design of the training desk through a CAD drawing or rendering. This should provide the evaluator with a view of how the equipment is going to look like once completed.</p>	10%	No design	Poor design	NA	Good design

Pneumatic Training Desk

Functional/Technical criteria	Weighting	0	5	7	10
<p>Frame</p> <ul style="list-style-type: none"> • Dimensions (l x b x h) : 1800 x 800 x 1820mm • 32mm Formica Folkstone Grey top: 1800 x 800mm • 1 x Extruded Frame with Module Rack and LCD Screen Holder (Double Sided) • Frame to be double sided for 2 students to work on one station • The following quantities for training parts are for a double-sided station (The list must not be duplicated.) • No compressor required <p>Frame to be supplied with the following modules and equipment:</p> <ul style="list-style-type: none"> • 2 x 24V Power Supply 240W (1 on each side) Frame mounted • 2 x E-Stop Safety Module fitted with safety relay (1 on each side) Frame mounted • 2 x 24V and OV Distribution Module (1 on each side) Frame mounted • 2 x Banana Plug cable holder (1 on each side) Frame mounted • 4 x Signal Input, electrical Frame mounted • 4 x Relay, three-fold Frame mounted • 2 x Time relay, two-fold Frame mounted • 2 x Preset counter, electronic Frame mounted <p>Equipment for basic pneumatic training:</p> <ul style="list-style-type: none"> • 4 x 3/2-way valve with pushbutton actuator, normally closed • 2 x 3/2-way valve with pushbutton actuator, normally open 	50%	Meeting none of the specifications	Meets <50% of the specifications	Meets > 50% of the specifications, but not all	Meets all of the specifications

<ul style="list-style-type: none"> • 2 x 5/2-way valve with selector switch • 2 x 3/2-way valve with selector switch, normally closed • 4 x 3/2-way roller lever valve, normally closed • 4 x Proximity sensor, pneumatic, with cylinder attachment • 2 x Pneumatic timer, normally closed • 2 x Pressure sequence valve • 2 x 3/2-way valve, pneumatically actuated at one end • 2 x 5/2-way valve, pneumatically actuated at one end • 6 x 5/2-way double pilot valve, pneumatically actuated at both ends • 2 x Shuttle valve (OR) • 4 x Dual-pressure valve (AND) • 2 x Quick-exhaust valve • 4 x One-way flow control valve • 2 x Single-acting cylinder • 2 x Double-acting cylinder • 2 x Start-up valve with filter control valve • 2 x Pressure regulator valve with gauge • 4 x Pressure gauge • 2 x Manifold • 4 x Plastic tubing, 4 x 0.75 Blue 10 m • 4 x Plastic tubing, 4 x 0.75 Red 10 m <p>Equipment set for advanced pneumatic training:</p> <ul style="list-style-type: none"> • 4 x 3/2-way valve with pushbutton actuator, normally closed • 2 x 3/2-way valve with mushroom-head emergency switch, normally open • 2 x 3/2-way roller lever valve with idle return, normally closed • 2 x Back pressure valve • 8 x 3/2-way valve, pneumatically actuated at one end • 4 x 5/2-way double pilot valve, pneumatically actuated at both ends • 4 x Plastic tubing, 4 x 0.75 silver 10 m • 8 x Shuttle valve (OR) • 6 x Dual-pressure valve (AND) • 2 x Pneumatic timer, normally open • 2 x Pneumatic preset counter • 2 x Stepper module 			

<ul style="list-style-type: none"> • 4 x One-way flow control valve • 4 x non-return valve, delockable • 4 x Double-acting cylinder 											
<p>Equipment set for Basic Electropneumatic Training:</p> <ul style="list-style-type: none"> • 2 x Limit switch, electrical, left-actuated • 2 x Limit switch, electrical, right-actuated • 2 x Proximity sensor, optical, M12 • 4 x Proximity sensor, electronic, with cylinder mounting • 4 x 3/2-way solenoid valve with LED, normally closed • 2 x 5/2-way solenoid valve with LED • 4 x 5/2-way double solenoid valve with LED • 2 x Pressure sensor with display • 8 x One-way flow control valve • 2 x Single-acting cylinder • 4 x Double-acting cylinder • 2 x Start-up valve with filter control valve • 2 x Manifold • 2 x Plastic tubing, 4 x 0.75 Blue 10 m • 2 x Plastic tubing, 4 x 0.75 Blue 10 m 											
<p>Equipment set for Advanced Electropneumatic Training:</p> <ul style="list-style-type: none"> • 2 x Proximity sensor, inductive, M12 • 2 x Proximity sensor, capacitive, M12 • 2 x Valve terminal with 4 valve slices (MMUJ) • 4 x Non-return valve, delockable 											
<p>Equipment set for Vacuum Technology:</p> <ul style="list-style-type: none"> • 2x Air pressure reservoir, 0.4 litre • 2x Pressure switch, 0 --1 bar • 2x Vacuum gauge • 2x Flow control valve • 2x Vacuum generator, type H • 2x Vacuum generator, type L • 2x Non-return valve • 2x non-return valve, delockable • 2x Suction gripper 20 SN • 2x Suction gripper 30 SN 											



<ul style="list-style-type: none"> • 2x Suction gripper 20 SS • 2x Suction gripper 30 SS • 4x Suction gripper 20 CS with vacuum security valve • 2x Suction gripper 4x20 ON <p>Equipment set for PLC Training: PLC must be able to mount into frame 2 x PLC with the following base specifications:</p> <ul style="list-style-type: none"> • Working memory 100Kb, CPU processing time 0.085us/Instruction, Supply Voltage 24Vdc, Retentive data area 10Kb, with RTC • Digital Inputs 14 (6 x High speed counting) + 8 via add on card (22 inputs) <ul style="list-style-type: none"> ○ Digital Outputs transistor 10 (4 x High Speed with 100Khz pulse train output) ○ + 8 via add on card (18 Outputs) ○ Analog Inputs 2 (Voltage 0 to +10V) ○ Analog Outputs 2 (10 Bit resolution) ○ Interface – Profinet and 1 x RS232 port via an add on card 				
<p>Equipment set for Sensors and Transducers Training: With brackets to mount in extruded slots on the frame</p> <ul style="list-style-type: none"> • 2 x Inductive Proximity Sensor 18mm Barrel Sn = 8mm PNP NO • 2 x Magnetic Sensor Sn = 60mm PNP NO • 2 x Ultrasonic Sensor with 1 to 10V output Sn 40 to 500mm • 2 x Diffused Reflection sensor 200mm IO link PNP • 2 x Retro reflective Sensor 4m IO link with reflector • 2 x Tru Beam Transmitter PNP • 2 x Tru Beam Receiver PNP • 2 x Incremental Encoder • 2 x Temperature Transmitter -50 to 150°C • 2 x LVDT with 0 to 10V output 0 to 200mm • 2 x 4 Port IO link master <p>Additional equipment required:</p> <ul style="list-style-type: none"> • 2 x All in one PC with swivel arm mounting on the frame with the following specifications: _____ 				

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<ul style="list-style-type: none"> <input type="radio"/> Intel Core i5 <input type="radio"/> 16 Mb RAM <input type="radio"/> 512 Gb SSD drive <input type="radio"/> 21" Touch Screen Resolution 1920x1080 <input type="radio"/> Full size keyboard and mouse <input type="radio"/> Network adaptor and USB ports <input type="radio"/> Blue Tooth <input type="radio"/> Webcam <input type="radio"/> Microsoft Windows 11 Professional 64-bit operating system <p>Connectors:</p> <ul style="list-style-type: none"> • 20 x red 50 mm 4mm Banana plug lead (safety type) • 20 x blue 50 mm 4mm Banana plug lead (safety type) • 16 x black 50 mm 4mm Banana plug lead (safety type) • 16 x red 300 mm 4mm Banana plug lead (safety type) • 16 x blue 300 mm 4mm Banana plug lead (safety type) • 36 x black 300 mm 4mm Banana plug lead (safety type) • 16 x red 500 mm 4mm Banana plug lead (safety type) • 16 x blue 500 mm 4mm Banana plug lead (safety type) • 36 x black 500 mm 4mm Banana plug lead (safety type) • 4 x red 1000 mm 4mm Banana plug lead (safety type) • 6 x blue 1000 mm 4mm Banana plug lead (safety type) • 4 x black 1000 mm 4mm Banana plug lead (safety type) • 2 x red 1500 mm 4mm Banana plug lead (safety type) • 2 x blue 1500 mm 4mm Banana plug lead (safety type) • 2 x black 1500 mm 4mm Banana plug lead (safety type) <p>Curriculum to be developed together with EMC.</p>			
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Technical Capability	40%	No experience or capability are demonstrated	Limited experience and capabilities demonstrated	NA	Relevant capabilities and experience are demonstrated
<p>Organisation should demonstrate experience in constructing similar equipment, providing case studies or references for similar projects.</p> <p><u>Concept Design</u> Provide a concept design of the training desk through a CAD drawing or rendering. This should provide the evaluator with a view of how the equipment is going to look like once completed.</p>	10%	No design	Poor design	NA	Good design

Hydraulic Training Desk

Functional/Technical criteria	Weighting	0	5	7	10
<p>Frame</p> <ul style="list-style-type: none"> • Dimensions (l x b x h) : 1800 x 800 x 1820mm • 32mm Formica Folkstone Grey top: 1800x 800mm • 1 x Extruded Frame with Module Rack and LCD Screen Holder • Frame to be double sided for 2 students to work on one station • The following quantities for training parts are for a double-sided station (The list must not be duplicated.) • 2 x Hydraulic power pack with a constant-displacement pump mounted on the frame <ul style="list-style-type: none"> ○ External gear motor with pressure relief valve adjustable from 0 – 6 MPa (0 – 60 bar) ○ Operating pressure: 6 MPa (60 bar) ○ Motor: 230Vac, 650 watt single-phase with overload protection, and ON/OFF switch ○ Delivery rate 2.5 litres per minute ○ Tank volume 5 litres, with temperature display, drain screw • 2 x 24V Power Supply • 2 x Self-sealing coupling nipples for P and T • 2 x Plug socket for unpressurized return • 2 x Connecting flange for measuring container return • 2 x E-Stop Safety Module fitted with safety relay • 2 x 24V and OV Distribution Module • 2 x Hydraulic tube holder • 2 x Banana Plug cable holder 	50%	Meeting none of the specifications	Meets <50% of the machine specifications	Meets > 50% of the specifications, but not all	Meets all of the specifications

<p>Equipment for Basic Hydraulic Training</p> <ul style="list-style-type: none"> • 2 x Pressure Relief valve • 2 x 2-Way Flow Control valve • 2 x 1-Way Flow Control valve • 2 x Non return valve, Detachable • 2 x Non return valve, 6 bar Opening pressure • 2 x 4/2 Way hand lever valve, spring return • 2 x 4/3 Way hand lever valve, relieving mid position • 2 x 4/3 Way hand lever valve closed mid-position • 2 x Shutoff valve • 2 x Differential cylinder 16/10/200 with cover and mounting kit • 2 x Weight – 9Kg • 2 x Hydraulic motor • 2 x T Distributor • 2 x 4 Way distributor with pressure gauge • 6 x Pressure Gauges • 2 x Flow sensor <p>Equipment for Advanced Hydraulic Training</p> <ul style="list-style-type: none"> • 2 x Pressure relief valve, compensated • 2 x 3 Way pressure reducing valve • 2 x Flow dividing valve • 2 x 2/2 Way stem actuated valve, convertible • 6 x Non return valve, 6 bar opening pressure • 2 x Diaphragm accumulator with shutoff block • 2 x Differential cylinder 16/10/200 with cover and mounting kit • 10 x T distributor <p>Equipment for Electrohydraulic Training</p> <ul style="list-style-type: none"> • 2 x Pressure relief valve • 2 x 2 Way flow control valve • 2 x 1 Way flow control valve • 2 x Non return valve, 6Bar opening pressure • 2 x 4/2 Way solenoid valve 24Vdc, spring return • 2 x 4/3 Way solenoid valve, closed mid position • 2 x 4/3 Way double solenoid valve, detenting • 2 x Shutoff valve 				
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<ul style="list-style-type: none"> • 2 x Weight 9Kg • 4 x Differential cylinder 16/10/200 with cover and mounting kit • 4 x T Distributor • 4 x 4 Way Distributor with pressure gauge • 4 x Pressure gauges • 2 x Electronic pressure switch • 4 x Relays • 2 x Signal input electrical • 2 x Limit switch, electrical, left activated • 2 x Limit switch, electrical, right activated • 4 x Proximity Sensor M12 • 2 x Timer relay • 2 x Preset electronic counter • 2 x 4/3 Way solenoid valve, relieving mid-position • 2 x Proximity Sensor, inductive type M12 <p>Equipment for Proportional Training</p> <ul style="list-style-type: none"> • 2 x Relay Control box for frame • 2 x Proportional amplifier • 2 x Set point card • 2 x Signal input box for frame • 4 x Proximity sensor, inductive M12 • 2 x 4/3 Way proportional valve • 2 x 4/2 Ay solenoid valve, spring return • 2 x Proportional pressure relief valve • 2 x Pressure filter • 2 x pressure balance (Proportional flow control valve) <p>Additional equipment required:</p> <ul style="list-style-type: none"> • 2 x All in one PC with swivel arm mounting on the frame with the following specifications: <ul style="list-style-type: none"> o Intel Core i5 o 16 Mb RAM o 512 Gb SSD drive o 21" Touch Screen Resolution 1920x1080 o Full size keyboard and mouse o Network adaptor and USB ports o Blue Tooth 		
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<ul style="list-style-type: none"> ○ Webcam ○ Microsoft Windows 11 Professional 64-bit operating system 	<ul style="list-style-type: none"> ● 20 x red 50 mm 4mm Banana plug lead (safety type) ● 20 x blue 50 mm 4mm Banana plug lead (safety type) ● 16 x black 50 mm 4mm Banana plug lead (safety type) ● 16 x red 300 mm 4mm Banana plug lead (safety type) ● 16 x blue 300 mm 4mm Banana plug lead (safety type) ● 36 x black 300 mm 4mm Banana plug lead (safety type) ● 16 x red 500 mm 4mm Banana plug lead (safety type) ● 16 x blue 500 mm 4mm Banana plug lead (safety type) ● 36 x black 500 mm 4mm Banana plug lead (safety type) ● 4 x red 1000 mm 4mm Banana plug lead (safety type) ● 6 x blue 1000 mm 4mm Banana plug lead (safety type) ● 4 x black 1000 mm 4mm Banana plug lead (safety type) ● 2 x red 1500 mm 4mm Banana plug lead (safety type) ● 2 x blue 1500 mm 4mm Banana plug lead (safety type) ● 2 x black 1500 mm 4mm Banana plug lead (safety type) ● 14 x Hydraulic hose with QRC 600mm ● 6 x Hydraulic hose with QRC 1000mm ● 4 x Hydraulic hose with QRC 1500mm 		
<ul style="list-style-type: none"> ● Curriculum content to be developed together with EMC 			

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Technical Capability Organisation should demonstrate experience in constructing similar equipment, providing case studies or references for similar projects.	40%	No experience or capability are demonstrated	Limited experience and capabilities demonstrated	NA	Relevant capabilities and experience are demonstrated
Concept Design Provide a concept design of the training desk through a CAD drawing or rendering. This should provide the evaluator with a view of how the equipment is going to look like once completed.	10%	No design	Poor design	NA	Good design

Technology Training Desk

Functional/Technical criteria	Weighting	0	5	7	10
Frame <ul style="list-style-type: none"> • Dimensions (l x b x h) : 2000 x 680 x 1900mm • 32mm Formica Folkstone Grey top • Basic 3 tier frame to hold A4 sized modules. Frame to be manufactured from aluminum profile. • A4 Module frame holding size (3 tier) • Desktop size and height L = 2000mm H = 1mm W = 500mm • Frame to house the following equipment on the side of the frame <ul style="list-style-type: none"> ○ 3 Phase 380 Volt supply fitted with 10A RCBO device with 4mm safety banana plugs output connections ○ 1 Phase 220 Volt supply fitted with 10A RCBO device with 4mm safety banana plugs and ○ 6 x IEC C13 sockets ○ 1 x 24V 5A power supply with 4mm banana plug sockets ○ 1 x 3 Phase isolator ○ 1 x 5V 1A power supply with 4mm banana plug sockets ○ 1 x +15 -15 Volt 800mA Power Supply with 4mm Banana plug sockets ○ 1 x 0 to 10 V process Indicator ○ 1 x 0 to 20mA process Indicator 	50%	Meeting none of the specifications	Meets <50% of the machine specifications	Meets > 50% of the specifications, but not all	Meets all of the specifications

To be supplied with the following A4 training modules



<ul style="list-style-type: none">All Inputs and outputs where possible must be connected via 4mm safety banana plugs <ol style="list-style-type: none">Light Curtain (Transmitter and receiver mounted to different modules) IFM OY051S 160mm CAT Module size Transmitter 297mm x 150mm Receiver 297mm x 280mmE Stop + Safety relay (PNOZ X1) Module Size 297mm x 280mmPush Buttons x 4 Push to make Spring return (1 x NO + 1 x NC contact) Module size 297mm x 150mmPush Buttons x 4 Push to make - Push to Release (1 x NO + 1 x NC contact) Module size 297mm x 150mmSelector Switches x 4 (1 x NO + 1 x NC contact) Module size 297mm x 150mmLike "Siemens HMI 7 " KTP700" with Profinet and USB port Module Size 297mm x 280mmLike "Siemens PLC S7-1212C" DC/DC/DC with 8 Digital Inputs, 6 Digital Outputs (6ES7212-1AE40-0XB0, Add On Modules: Digital I/O 8 inputs, 8 Outputs Module (6ES7223-1BH32-0XB0), Analog Module (6ES7234-4HE32-0XB0) Module size 297mm x 550mmLike "Siemens PLC S7-1511-1PN" (6ES7511-1CK01-0AB0) with 16 Input and 16 Output module, 5 Analog inputs, 2 Analog outputs. Module size 297mm x 550mmTwo Hand Control with 2 x ABB Push Balls and Safety Relay Module Size 297mm x 280mm				
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<p>10. Contactors 24 V x 3 with 2 x NO contacts and 2 x NC contacts on each contactor Module Size 297mm x 280mm</p>				
<p>11. 24 V relays x 2 (Finder relays 24Vdc 60.12.9.024.0040) Module size 297mm x 150mm</p>				
<p>12. Single lane bridge PLC application module for PLC training Single Lane bridge Traffic signal to control flow of vehicles crossing the bridge. Vehicle counters to be fitted on all lanes entering and exiting the bridge. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module. Module Size 297mm x 280mm</p>				
<p>13. Traffic control PLC application module for PLC training, T junction configuration. Traffic signals to control the flow of traffic. To include pedestrian crossing on all lanes. Module Size 297mm x 280mm. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.</p>				
<p>14. Profinet I/O link master IFM AL1100 Module size 297mm x 150mm</p>				
<p>15. Temperature sensor I/O link IFM TA2105 Module size 297mm x 150mm</p>				
<p>16. Distance sensor I/O link IFM 05D150 Module Size 297mm x 280mm</p>				
<p>17. Ethernet switch Siemens 8 Port (6GK5008-0BA10-1AB2) Module size 297mm x 150mm</p>				
<p>18. Residual circuit breaker 3 phase 25 Amp Sensitivity 30mA Module size 297mm x 150mm</p>				
<p>19. Timers 2 x Multi-function timers GIC 1CMDTO Module size 297mm x 150mm</p>				

<p>20. 22mm indicator Lamps 24V dc x 5 (red, orange, green, blue, white) Module size 297mm x 150mm</p>				
<p>21. Motor overload switch 3 phase 0.45 to 0.63 Amps Siemens 3RV2011-0GA20 Module size 297mm x 150mm</p>				
<p>22. Rotary encoder (Sick 1024 PPR) (Incremental type) To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module. Module size 297mm x 150mm</p>				
<p>23. Tower light I/O link TLF100P3AKQP 3 segments Module size 297mm x 150mm</p>				
<p>24. Stepper motor - Stepper motor size NEMA 17 with driver, ball screw, linear guide and limit switches for over travel. To be able to interface into PLC S7-1212C and PLC S7-1511-1PN module.</p>				
<p>25. VSD Drive 220 Volt single phase supply for 3 phase 0.18 Kw motor (Motor to be supplied) Schleuder Drive ATV320U02M2C Module Size 297mm x 280mm</p>				
<p>26. Magnetic coded safety switch IFM MN503S Module size 297mm x 150mm</p>				
<p>27. Linear displacement transducer (resistive) PK-M-0100 L000X000X00 Module Size 297mm x 280mm</p>				
<p>28. Proximity Sensors (capacitive, magnetic, ferrous metals) Module Size 297mm x 280mm</p>				
<p>29. Angle gauge Accustar 02111002-000 with analog output. Module size 297mm x 150mm</p>				

Wolfsburg plug leads:



<ul style="list-style-type: none">• 60 x 300mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)• 60 x 500mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)• 60 x 1000mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)• 60 x 1500mm 4mm Safety socket on each end (Black x 20 , Red x 20, Blue x 20)• 20 RED 19mm Jumper• 20 BLUE 19mm Jumper• 1 x 24Mb memory card for S7-1511 PLC <p>1 x 24Mb memory card for S7-1511 PLC</p> <p>2 x Electric motor single phase capacitor start 0.18kw 4 pole 230v foot mount</p> <p>2 x Electric motor single phase capacitor run 0.18kw 4 pole 230v foot mount</p> <p>2 x Electric motor single phase capacitor start/run 0.18kw 4 pole 230v foot mount</p> <p>2 x 3 phase Electric braked footmount 0.37kw 4 pole</p> <p>2 x Slip ring motor 0.27kw 400v 4 pole, Excitation voltage 95v</p> <p>All motor connections to be terminated with 4mm colour coded safety banana plugs.</p> <p>Motor is to be attached to an extruded aluminium profile with rubber feet.</p> <ul style="list-style-type: none">• Motor shaft is to be enclosed.					
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**Eastcape
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