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| MEMORANDUM FROM THE PARLIAMENTARY OFFICE |

**NATIONAL ASSEMBLY**

**FOR WRITTEN REPLY**

**QUESTION 3983**

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**INTERNAL QUESTION PAPER NO 42 OF 2022**

**Ms C V King (DA) to ask the Minister of Higher Education, Science and Innovation:**

(a) Which technical vocational education and training (TVET) colleges have been identified for skills training aligned to the Fourth Industrial Revolution (4IR), (b) how far is the process and (c) what financial injection towards the 4IR‑aligned skills training has been earmarked for the identified TVET colleges?

**NW4953E**

**REPLY:**

A multi-pronged approach was adopted on skills training aligned to the Fourth Industrial Revolution(4IR) in TVET colleges.

1. The **first approach** involved the identification of ten (10) TVET Colleges wherein 4IR Centres of Excellence are established.

(a) 1.     The ETDP SETA and the Department of Higher Education and Training (DHET) identified ten (10) TVET colleges to establish 4IR Centres of Excellence from which, skills training aligned to 4IR would be conducted. The table below reflects the names of the ten TVET colleges, the 4IR areas each has chosen to focus on, and the progress achieved thus far:

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| **TVET COLLEGE** | **FOCUS AREAS** | **PROGRESS** |
| Ehlanzeni TVET College | 3D printing, Internet of Things, robotics, and Networking | 90% completed. Launched on  6th October 2022. |
| Goldfields TVET College | Cyber Security | 100% completed. To be  launched on  10 November 2022. |
| Ikhala TVET College | Recognition of Prior Learning; and use of the Learning Management System | 60% completed. |
| Lephalale TVET College | Robotics, coding, Artificial Intelligence; 3D printing, Internet of Things, networking, and growing interest in Cyber Security | 95% completed. To be  launched on  30 November 2022. |
| Northern Cape Urban TVET College | Renewable Energy, IT Linguistics; Welding; Drone simulation, and 3D Printing | 25% completed. |
| Umgungundlovu TVET College | Recognition of Prior Learning; and use of the Learning Management System | 60% completed. |
| Vhembe TVET College | Robotics (Bionic and Microcontrollers); Industrial Robotics; Mobile Robotics; Automation Technology; Intelligent Components; Industry 4.0 System; and Cyber security | 100% completed and  launched on  11 August 2022 |
| Vuselela TVET College | Artificial Intelligence Robots; House Automation technology; 3D Printing technology; and Virtual Reality technology | 95% completed. To be  launched by  03 November 2022 |
| West Coast TVET College | Coding, 3D printing; artificial intelligence; and robotics | 25% completed. |
| Western TVET College | Welding robot (raspberry pi, Arduino); CNC machining & 3D printing; PLC’s; Drone simulation; and Software simulation | 90% completed. To be launched on  07 December 2022. |

(a) 2.     Further, the Ekurhuleni East TVET College, merSETA, and FESTO are in a tripartite private-public partnership to establish a 4IR Centre of Excellence, to an estimated value of R10 million with the College providing the infrastructure in addition to its contribution.

(b) 1.     The Vhembe TVET College 4IR Centre of Excellence was launched on 11 August 2022 presided over by the DHET Director-General, Dr Nkosinathi Sishi, the   Deputy Director-General of TVET, Mr Samuel Zungu, the local Chiefs in the Vhembe District, and the CEO of the ETDP SETA, Ms Nombulelo Nxesi. The Ehlanzeni TVET College 4IR Centre of Excellence was launched on 06 October 2022 presided over by the Mpumalanga Department of Education MEC, Mr Bonakele Majuba, the ETDP SETA, Ms Nombulelo Nxesi, and the Mpumalanga-North West Regional Manager, Dr Nick Balkrishen.

The table displayed in 1. (a) 1 above, reflects the progress achieved by the 10 colleges. Most of the 10 TVET colleges have also applied to the DHET for approval to provide the 4IR-aligned skills training and will commence with that after approval and accreditation are granted. Implementation could commence in 2023. However, staff development processes have already commenced.

(b) 2. The Ekurhuleni East TVET College- MerSETA-FESTO project is at 80% completion of the building works. The skills training is envisaged to commence in April 2023.

(c) 1. The ten colleges involved in the ETDP SETA-DHET project were funded with a combined figure of R47 900 000.00.

(c) 2. The Ekurhuleni East TVET College-MerSETA-FESTO project is funded with an estimated combined figure of R10 000 000.00 for equipment while the cost for the building construction (funded by the College) is estimated at R5 000 000.00.

2. The **second approach** is the establishment of Industry-Partnered Learning Factories spearheaded by the CSIR, the DSI, and merSETA

(a) The merSETA is targeting to establish 18 Industry-Partnered Learning Factories (IPLFs), two IPLFs in each province at an estimated amount of (c) R120m to support 4IR skills development, innovation, and entrepreneurship. These Learning Factories will also serve as platforms for upskilling and re-skilling of the industry workforce through short courses to support the adoption of advanced technologies.

(a) The following two TVET Colleges have been identified for piloting the programme:

* East Cape Midlands TVET College – The following focus areas for this Learning Factory have been identified in partnership with the local automotive industry: mechatronics digital cell, mechanical digital cell, welding cell, etc, and 4IR technologies will include Internet of Things, Robotics, Cyber security, blockchain, AR & VR, Cloud Computing, etc. (b) The digital cells are scheduled to be completed before the end of March 2023.
* Falsebay TVET College – (b) This TVET College still needs to identify a campus that will be more accessible, then industry engagements will start in order to determine focus areas for the Learning Factory.

(b) The CSIR in partnership with merSETA, DHET, and DSI is in the process of finalizing the development of a National Framework for Industry-Partnered Learning Factories.

3. The **third approach** is the establishment of Academies.

 The Department has partnered with HUAWEI which has established ICT Academies in at least 22 TVET Colleges. These academies have offered courses related to 4IR such as AI, Big Data, IoT, 5G, Cloud Computing, Routing and Switching, Security, WLAN, Storage, etc. in a three-level certification system. 261students and 51 instructors have been trained in these programmes.

10 Colleges have been approved to offer a new stream on Robotics which is part of the NCV: IT & Computer Science programme from 2023. Below is the list of the approved colleges:

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| **College** | **Campus** |
| Ekurhuleni West TVET College | Germiston Campus |
| Vhembe TVET College | Makwarela Campus |
| Capricorn TVET College | Polokwane Campus |
| College of Cape Town | Pinelands Campus |
| False Bay College | Fish Hoek Campus  Khayelitsha Campus |
| Sedibeng TVET College | Vereeniging Campus |
| Motheo TVET College | Hillside View campus |
| Mopani TVET College | Sir Val Duncan Campus |
| uMgungundlovu TVET College | Northdale College |
| Thekwini TVET College | Melbourne Campus |

4. The **fourth approach** is the establishment of ICT laboratories sponsored by Intel:

(a) The Department of Higher Education and Training (DHET) partnered with Intel South Africa to provide ICT infrastructure to TVET Colleges with the implementation of 4IR. The pilot project was started with Orbit College in the North West Province to develop a blueprint for the implementation of the project.

The project consists of two aspects:

1. ICT Infrastructure; and

2. Comprehensive 4 IR training at different levels.

The following processes unfolded:

1. Identification of the institution;

2. Engage with the management and lecturers to determine the level of commitment and sustainability of the project;

3. Level of training requirements (baseline assessment); and

4. Infrastructure requirements.

(c) Cost of the ICT infrastructure: A total of R1 million per project. The training cost is dependent on the finding of the baseline assessment.

Next steps:

1. Identify Colleges with 4 IR ICT Infrastructure that need 4IR training;

2. Identify Colleges that need support with 4 IR ICT infrastructure;

3. Update the 4 IR Orbit blueprint for ICT infrastructure; and

4. Develop a college-specific 4 IR support plan.