CONSTRUCTION PROGRAMMES

ZAMBIA QUALIFICATIONS FRAMEWORK (ZQF) LEVEL 6

SYLLABUS FOR

DIPLOMA

IN

ENERGY STORAGE MATERIALS

PROGRAMME NO. 419

Prepared by:
Curriculum Development Unit,
Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA)
P/Bag RW 16x,
Birdcage Walk,
Lusaka
Phone: +260 211 253211
E-mail: teveta@teveta.org.zm
Website: http://www.teveta.org.zm

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ACRONYMS

BEV	Battery Electric Vehicle
CE	Counter Electrode
CPE	Composite Polymer Electrolyte
CV	Cyclic Voltammetry
DEFC	Direct ethanol fuel cell
DMFL	Direct Methanol Fuel Cell
ECC	Electrochemical Concentration Cell
EIS	Electrochemical Impedance Spectroscopy
FC	Fuel Cell
FCEV	Fuel Cell Electric Vehicle
HEV	Hybrid Electric Vehicle
LIB	Lithium Ion Battery
ORR	Oxygen Reduction Reaction
P&IDs	Process and Instrumentation Drawings
PAFC	Phosphoric Acid Fuel Cell
PEM	Proton Exchange Membrane
PEMFC	Proton Exchange Membrane Fuel Cell
RCB	Rotating Disc Electrode
RDE	Rotating Disc Electrode
RE	Reference Electrode
SCE	Saturated Calomel Electrode
SHEQ	Safety, Health, Environment and Quality
SOFC	Solid Oxide Fuel Cell
TEVETA	Technical Education, Vocational and Entrepreneurship Training Authority

WE	Working Electrode
ZCCM	Zambia Consolidated Copper Mines
ZIT	Zambia Institute of Technology

1.0. THE TECHNICAL EDUCATION, VOCATIONAL AND ENTREPRENEURSHIP TRAINING AUTHORITY (TEVETA)

The Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) is a corporate body established under the Technical Education, Vocational and Entrepreneurship Training (TEVET) Act No. 13 of 1998 and the TEVET (Amendment) Act No. 11 of 2005.

TEVETA was established to regulate, monitor and coordinate Technical Education, Vocational and Entrepreneurship Training (TEVET) in consultation with industry, employers, workers and other stakeholders. It is TEVETA's aim to develop a system of Technical Education, Vocational and Entrepreneurship Training (TEVET) that will satisfy the real demands and requirements of the labour market and socio-economic conditions, all of which are recognised to be in a state of constant change.

2.0. ACKNOWLEDGEMENTS

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S/N	NAME	POSITION	ORGANISATION
1.	Joseph Chola	Lecturer	Mufurila college of Education
2.	Audrey Kabwe	Lecturer	SINO ZAM
3.	Henry Mupeta	Lecturer	Copperbelt University
4.	Philip Milambo	Consultant	Kafue Gorge Regional Training Centre
5.	Deng Panpan	Lecturer	Leshan Vocational and technical college
6.	Liang Chimin	Principal	SINO-ZAM Vocational College of Science

			and Technology
7.	Song Kai	Secretary General	National Nonferrous Metals Vocational
8.	Liu Zhong	Principal	Leshan Vocational & Technical college
9.	Zhang Xuehe	Vice Principal	Leshan Vocational & Technical college
10.	Wang Li	Dean of the New energy Department	Leshan Vocational & Technical college
11.	Mei Yan	Associate Professor	Leshan Vocational & Technical college
12.	Jia Xi	Associate Professor	Leshan Vocational & Technical college
13.	Deng Panpan	Engineer	Leshan Vocational & Technical college
14.	Yang Shun	Lecturer	Leshan Vocational & Technical college
15.	Deng Kai	Engineer	Leshan Vocational & Technical college
16.	Zhu Lihua	Director	Training Department of Coloured Talent Centre
17.	Phyllis Kasonkomona	Director Development Division	TEVETA
18.	Stan Muwowo	Manager Curriculum Development	TEVETA
19.	Kennedy Bowa	Manager Training Provider Support	TEVETA
20.	Mwamba Mutale	Specialist – Curriculum Development	TEVETA

3.0. RATIONALE

The National Energy Policy Zambia of 2019 highlights that Zambia has a hydropower potential in excess of 6,000MW out of which about 2,354MW has been developed[1]. Zambia is confronted with an increasing energy demand, resulting from demographic and socioeconomic factors, at an average of 6 percent or 150-200 MW per annum. In line with this, the vision 2030 postulates increased alternative sources of energy[2] such as energy storage, solar, biomass to mention but a few.

Energy storage plays a vital role in reducing the gap between energy supply and demand. It also enhances the reliability and performance of energy systems. This leads to saving of fuels and making cost-effective systems by storing the wastage of energy. Lithium, cobalt and nickel are key materials for the manufacture of energy storage

[1] GRZ (2019). National Energy Policy 2019. Ministry of Energy

[2] Vision 2030