



ENGINEERING PROGRAMMES

ZAMBIA QUALIFICATIONS FRAMEWORK (ZQF) - LEVEL 6

CURRICULUM SYLLABUS

FOR

DIPLOMA IN MECHATRONICS

Programme No. 410

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ACRONYMS

A.P.s	Arithmetic Progressions
AC	Alternating Current
AQC	Acceptance Quality Control
BCC	Body-Centred Cubic
BJT	Bipolar Junction Transistors
CB	Common-Base Configuration
CC	Common Collector
CE	Common Emitter
CMOS	Complementary Metal Oxidise MI Conductors
CO ²	Carbon Dioxide
CT	Current Transformer
DC	Direct Current
DSS	Driver Support System
EMF	Electromotive Force
FCC	Face-Centred Cubic
FET	Field Effect Transistor
FETS	Field Effect Transistors
FOLI	First Out Last In
G.P.s	Geometric Progressions
HCP, CHP	Hexagonal Close Packed
IGBT	Identify Insulated Gate Bipolar Junctions Transistors
LAN	Local Area Network
LED	Light Emitting Diodes
MCU PCB	Micro-Processor Control Unit Printed Circuit Board
NIIT	Nanjing Institute of Industry Technology
P&ID	Process And Instrumentation Drawing
PCB	Printed Circuit Board
PLC	Programmable Logic Controller
RMS	Root Mean Squares
SC	Scale Factor
SCR	Silicon Controlled Rectifiers
SCRs	Silicon Controlled Rectifiers
SFG	Signal Flow Graphs
SHEQ	Safety, Health, Environment And Quality
SMPS	Switch-Mode Power Supply
TIA	Totally Integrated Automatic
TTL	Transistor Transistor Logic
UJT	Unijunction Transistors
UPS	Uninterrupted Power Supply
VT	Voltage Transformer
WWW	World Wide Web
ZCCM	Zambia Consolidated Copper Mines
ZIT	Zambia Institute Of Technology

ABOUT TEVETA

The Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA) is an institution established under TEVETA Act No. 13 of 1998 read together with the Amendment Act No. 11 of 2005. Its functions include, to regulate, coordinate and monitor education, vocational and entrepreneurship training in consultation with stakeholders.

TEVETA executes its regulatory function through the provision of services, among others, the development, review and approval of TEVETA Curricula in consultation with industry, employers, employees and other stakeholders.

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2.0. RATIONALE

In Zambia, the demand for qualified mechatronics technologists are quite immense. Up until the late 1990s, the Zambia Consolidated Copper Mines (ZCCM) and the Zambia Institute of Technology (ZIT) played a major role in training mechatronics specialists through its renowned scholarship programmes abroad and locally.

Mechatronics integrates mechanical, electrical, computer, and control systems. For instance, if you design CD drives, robots, anti-lock brakes, copy machines, or any other devices that can be remotely operated by a computer involves concepts of mechatronics. In order to appreciate the concept of mechatronics, one can simply think about today's automobiles, in which an average automobile today has between 25 and 50 central processing units (CPUs) that control mechanical functions. A driver support system (DSS) such as anti-lock brakes is designed with mechatronics; the electronic control system takes over the braking function when sensors recognize that one or more wheels are locking up.

Furthermore, the pneumatic tire pressure monitoring system is also designed with mechatronics. In the sense that each tire has a sensor inside that sends data to an onboard electronic control system. If the pressure on one tire is low, the embedded software in the control system sends an alert to the vehicle's dashboard and a tire gauge icon lights up.

The programme will, therefore, provide the nation with qualified mechatronics technologists who will apply the skills acquired through this programme and other related disciplines not only to meet the highlighted demands in Industry field but also to improve employment and income.