

**Need for basic
analytical techniques
to produce reliable and
repeatable results**

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1. Cause for lack in basic laboratory skills

OBE – Point of reference

- Lack of proper textbooks
- Notes compiled in such a way that learners fill in notes
- Infrastructure insufficient
- Parents do the assignments

Funding for tertiary institution

- Demand for larger throughput
- Less funding to institution – even practical sessions
- Larger classes – even practical sessions
- Service subject practicals scale down

Education model

- Student centered vs lecture centered?

Experiential training

- Reduced or even cancelled
- Lack of experienced trainers at work station
- New approach – “WIL”
- Hours presented vs hours trained

Learnership/Internship

- Learnership program in certain field not properly constructed
- Recognition problem – RPL
- Training program lacks
- Internship-trainer not always well equipped

Sophisticated Instrumentation

- Instrumentation design

2. Specific problems

Specific problems

- Language
 - Mother tongue
- Mathematics/Computations
 - \times and \div
 - $5 + 0.5(4+6) = ?$

Specific problems

- Physics
 - Decimeter
 - Water freezes
- Chemistry
 - Mole?
 - Notation – 5ml, 5MI, 5mL

3. Basic Skills

Basic skills

- Analytical balance
- Thermometer
- Calibration: pipette, burette, volumetric flasks
- Titration and replicates
- Solution preparation

4. Instrumentation

5. Quo Vadis

Quo Vadis

- Partnerships
 - Business and educational institutions
- Approach
 - Hands on
 - In house
 - Partnership between business
- Training
 - NLA initiative
 - Extend programs
- JIT
 - Use experts

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Thank you.