## **ANNEX A: HIGH GEAR TVET COURSE UPGRADE VISUALS**

Example Demonstration Aid	TVET Textbook / Concepts Covered	Context /Industry
<image/>	<ul> <li>Belt Drives</li> <li>Open, crossed and V belt drives</li> <li>Radians</li> <li>Effective diameter</li> <li>Velocity ratio</li> <li>Belt velocity</li> <li>Belt length</li> <li>Angle of contact</li> <li>Tension in belt</li> </ul>	<ul> <li>Crankshaft/alternator or air conditioner (Vee belt)</li> <li>Conveyor/Fan belt</li> <li>Car engine</li> <li>Lathe/Milling machine</li> </ul>
<image/>	<ol> <li>Half wave rectification</li> <li>Full wave rectification</li> <li>Smoothing capacitor</li> <li>Use Information to calculate:         <ul> <li>Average or DC values</li> <li>RMS values</li> <li>The efficiency</li> <li>Ripple factor</li> <li>PIV value</li> </ul> </li> </ol>	<ul> <li>a) Power supplies converting AC- DC</li> <li>b) EG. Laptop/phone charger</li> </ul>

## Example Demokit Aids & Textbook and Industry Linkages (14 demokit aids in total)

## **TVET Implementation Visuals (2021)**



Portable Demokit Aid Storage Box (1 per lecturer)



Sample of Demokit Aids (mechanical engineering)



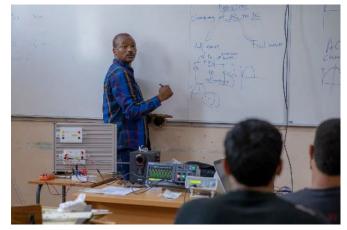
**TVET Lecturer Training Workshop (Eastern Cape)** 



TVET Lecturer Training Workshop (KZN)



**TVET Classroom Implementation** 



**TVET Classroom Implementation** 

## **Example TVET Lecturer Lesson Plan Excerpts** (lesson plans leverage High Gear demokits)

Eastcape Midlands Co		higher education & training http://www.com/actionad/taking http://www.com/actionad/taking http://www.com/actionad/taking	Eastcape Midlands College	
Subject: Mechanote Week: TOPIC:	Lecturer:	Campus: Charles (	Goodyear	
WEIGHTING:	SELIS DRIVES	LENGTH OF LESSON	l: 300 (Minutes)	
SUBJECT OUTCOME:	5 Upon successful completion, st applied competence in main th			
LEARNING OUTCOMES:	On completion of this topic stu     Do calculations involving     Calculate the power tran     of a flat-belt drives.     Calculate the power tran     belt drives.     Calculate the power	dents should be able t g flat-, V- and Conveyor smitted by belt tension	Wesnapotechnics, o: belts. n, belt size and belt length	
OUTCOMES (EFAL ONLY): (Be specific e.g letter of enquiry, report etc)	and mass conveyed Introduction of belt. Types of belt drives Flat belt drive Effective dian	ed elt es Eastrape Midlands College Lesson Plan Eastrape Midlands College Lesson Plan		
	<ul> <li>Velocity Ratio</li> <li>Belt velocity</li> <li>Belt length ope</li> <li>Angle of conta</li> <li>Friction – slack</li> <li>Centre distance</li> <li>Calculate the te</li> <li>Centrifugal tensi</li> <li>Torque transmitti</li> <li>Power transmitti</li> <li>Power transmitti</li> <li>Force on bearing:</li> <li>Cross belt drives</li> <li>Belt length</li> </ul>	of driving and driven pulley with clarification guestions and	is pulley. Is the driven pulley is pulley i'm rotating is the driving pulley - What <u>do</u> we call the other pulley? ent 1 m the big pulley clockwise (to the right) What's happening to the direction of the pulley? clockwise im the small pulley anti-clockwise (to the left) what's happening to the direction he big pulley? Anti-clockwise dent 2 lease provide power to this flat belt drive by rotating one of the pulleys. What do call the pulley you are rotating with your hand? Driving pulley tice how the belt is transferring power to the other pulley? What do we call the her pulley? Driven pulley what do the belt.	
	Contact angle or angle of     Torque transmitted by bel     Power transmitted by belt     Force on bearing     Number of plies     Power to overcome gravity     Power to overcome friction     Power and the head pulley     Check understand		Refer to the calculation in your <u>bound to be a construction of the diameter of the large pulley and lower case</u> d to represent the diameter of the small pulley. Write D and d on the board. To make sure we remember it is the pulley diameter we will add a lower case 'p'. For my calculation I need the measurement of $\mathcal{Q}_{e^-}$ Which pulley do I need to measure?	
Implementation August 2021	<ul> <li>Power and the head pulley</li> <li>Efficiency</li> </ul>	of effective diamete with clarification questions and student demos	<ul> <li>Please come up and measure it for me.</li> <li>Write value for Q<sub>0</sub> on the board.</li> <li>For my calculation I need g<sub>0</sub> -</li> <li>Which pulley do I need to measure?</li> </ul>	t = 0,6mn C,006 m $D_{e} = D_{p} + \frac{5}{2} + \frac{5}{3}$ $D_{e} = D_{p} + t$ $D_{e} = 0,1 + 0,000t$
		Higher Order Thinking Skills – analytical thinking skills Student applicatio	Please measure defor me Write value for defor the board I will give you the thickness of belt. T=0.6mm Ask a volunteer to read the formula for effective diameter from the text book. Ask the students what unit is De calculated in – O What units did we measure the diameters in – m When we substitute those measurements into ti Ask the students to tell you what values to substi-	$de = dp + \frac{1}{2} + \frac{1}{2}$ $de = dp + \frac{1}{2} + \frac{1}{2}$ $z = 0, est + 0, or 0.6$ $= 0, est + m$ Interfers beformula we need to convert them.
		activities Implementation	August 2021	