

LAB3 TECH

VIRTUAL TVET

INDUSTRY 4.0 READY!

QUALITY
INNOVATION
RELEVANCE
EMPLOYABILITY

21st Century TVET
From Teacher Led to Student Centric to Nationwide

LAB3 TECH

WHAT IS VIRTUAL TVET

1. Uses Technology for Teaching and Learning
2. Is Industry 4.0 Ready!
3. Uses Interactive Realistic 3D Models
4. Fully Utilizes Blended Learning
5. Has Multiple Delivery Methods
6. Can be Delivered through a TVET Learning Management System (LMS) both Offline and Online

**21st Century TVET Eco-System
New Learning Architecture**

Virtual Reality For large systems or dangerous areas	Augmented Reality Paired with equipment
Pre Lab Learning 2D / 3D	Practical Hands-on Lab for Skills training

Mixed Reality Environment

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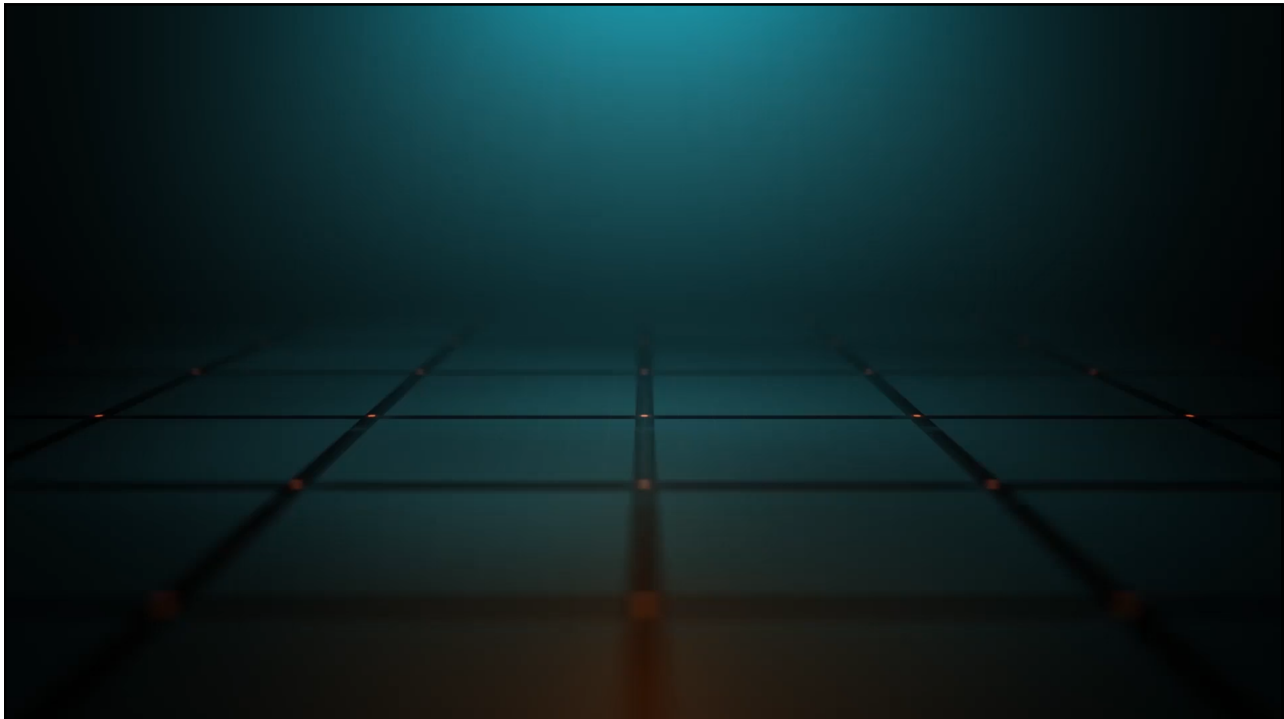
LABTECH - BRINGING THE LATEST TECHNOLOGY TO THE TRAINING WORLD

Labtech International is all about **HELPing** teachers and students develop life skills that are relevant to industry now and be **Industry 4.0 READY**. This means not only equipping our teachers and students with technical skills but also the relevant soft skills.



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LABTECH CUSTOMER SERVICES

Bringing The Latest Technology To The Training World

- Conceptual Program Design
- Facilities & Services Planning
- Curriculum Design & Upgrades
- Equipment Lists And Budget Preparation
- Specification Writing
- Supply of Training Systems
- Supply of Custom Training Systems
- Supply of Complete Labs
- Teacher Training And Preparation
- Teacher and Student Apprenticeship Programs
- 21st Century Skills Solutions, Integration & Implementation
- Virtual TVET



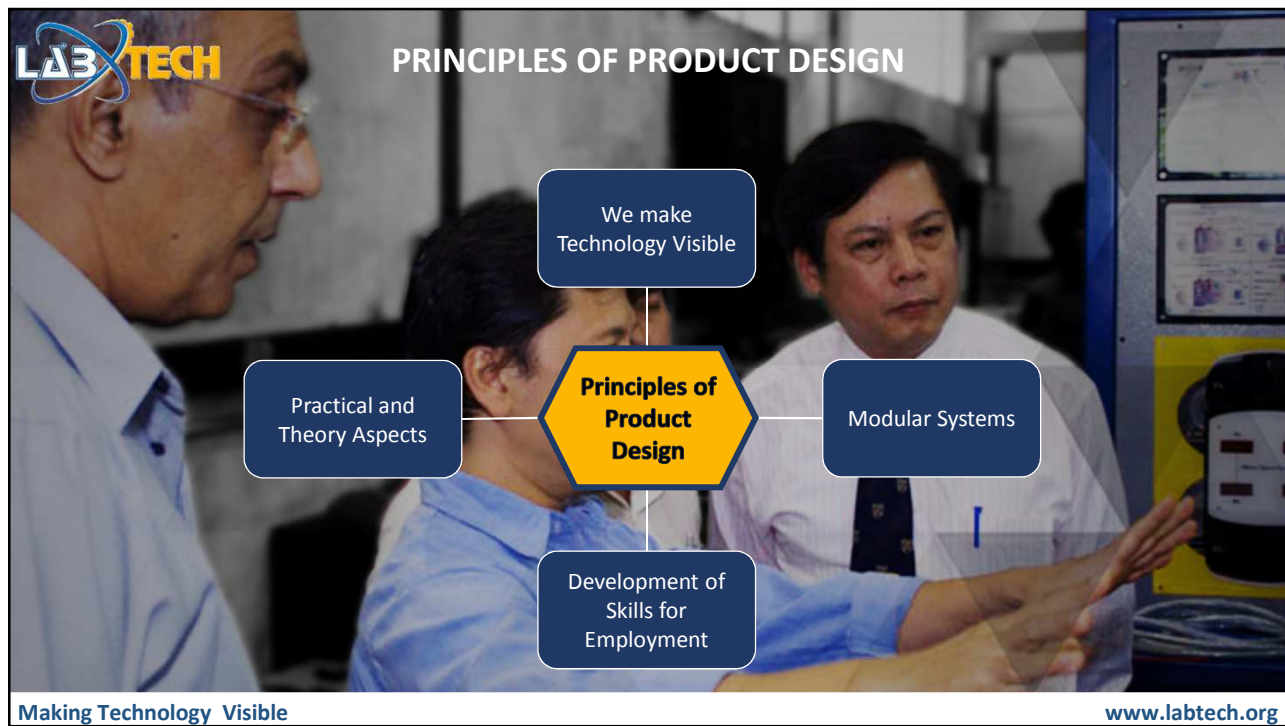
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ISO CERTIFICATIONS

Labtech has obtained major Quality Certifications from TÜV Rheinland, Germany:

ISO 9001:2008 Quality Management System

ISO 14001:2004 Environmental Management Standards

OHSAS 18001:2007 Occupational Health and Safety

9001 Certification Categories: Research, Assessment, Design and Development of Educational Training Systems, Programs and Products.

Manufacturing of Educational Training Systems and Products to International Standards which includes the processes of: Production, Manufacturing Resource Planning (MRP), Quality Control and Assurance (QC/QA), International Sales & Marketing, Project Implementation and Consulting Services, Training Programs and Customer Services.



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INDUSTRY AND TECHNOLOGY PARTNERS & MEMBERSHIPS



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LEARNING PROCESS IS CHANGING

Traditional Demonstration Models



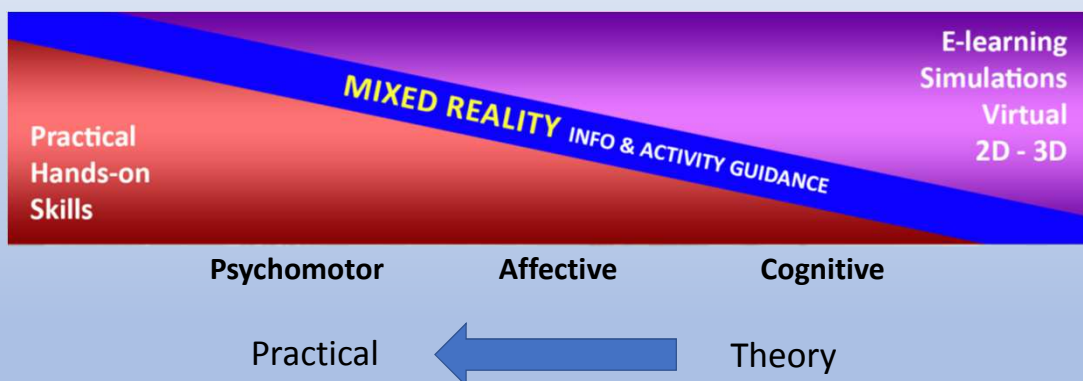
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BLENDED LEARNING: RE-THINKING TVET

VIRTUAL: Creating the Right Balance between Theory and Practical Hands-on Learning

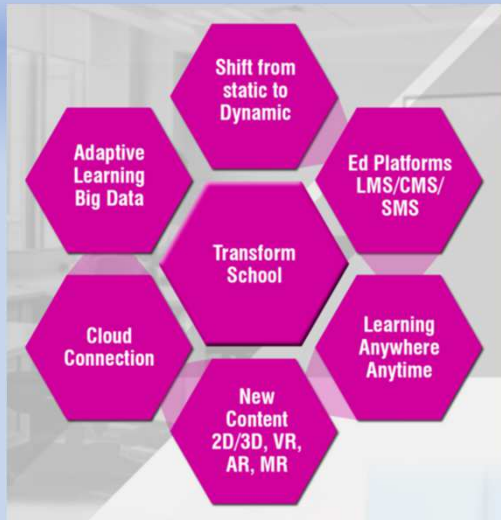


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CONVERGING TECHNOLOGIES WILL CHANGE EDUCATIONAL CAPABILITIES



Schools can transform by using the new technologies for the benefit of :

- Teaching
- Learning
- Administration
- ICT infrastructure

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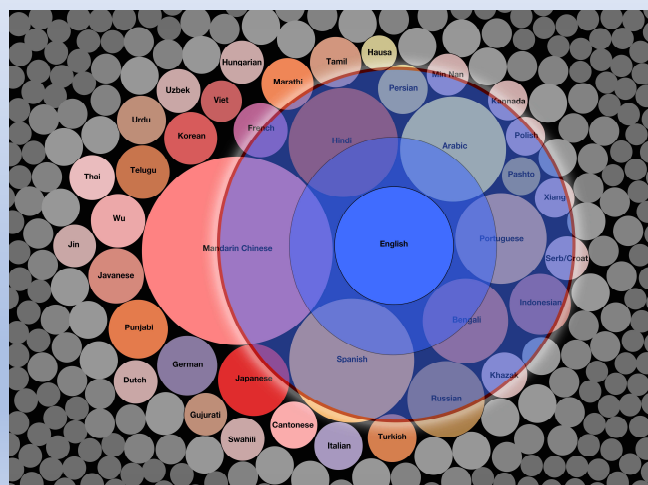
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LABTECH VOCATIONAL ENGLISH TRAINING

Two Billion People in the World are trying to Learn to Speak ENGLISH

The Problem is TOO MUCH GRAMMAR, Not Enough Speaking Practice



Practice

Practise listening to and then speaking English words and phrases along with real English speakers, any time you want.

Record

See for yourself how well you are doing by recording yourself speak and then comparing your performance to the tutor.

Check

Check how much you know with these fun tests of both your listening and speaking skills. Then take them again to try to beat your own score (but don't cheat!)

Mobile

YES! English is always on your phone or your tablet so you can practise anywhere, anytime. Learning to speak English has never been this easy!

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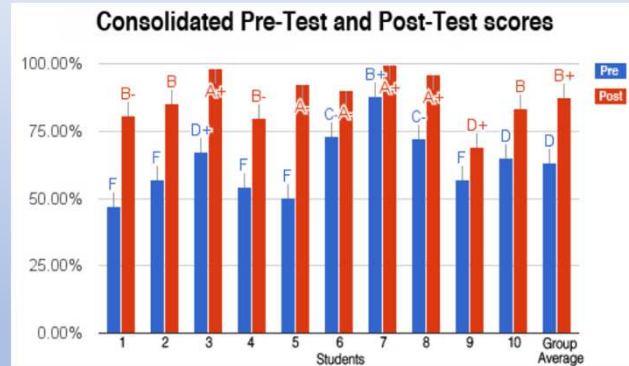
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LABTECH VOCATIONAL ENGLISH TRAINING

WATCH, LISTEN, COPY, REPEAT

1. Pre and Post Tests PLUS Knowledge Checks
2. Listen and Speak Vocation ENGLISH Words
3. Learn Anytime, Anywhere
4. Measured the Responsiveness, the Accuracy and Pronunciation of the Learners
5. ENGLISH Courses Available For: Chinese, Japanese, Vietnamese, Bahasa Malaysia, Bahasa Indonesia, Burmese, Korean, Thai and Cambodian.
6. Endorsed by the Australian Education and Industry Alliance (AEIA)
7. Meets the Requirements of PTE Certification (Pearson English Language Test)



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LABTECH DIGITAL CONTENT LEARNING ELEMENTS

Background Theory

Glossary
Background Theory
Video
Component Description
Assembly and Disassembly
Functional Animations
Formative Assessments
Summative Assessments

Formative Assessments

Animations

Video 2D & 3D

Parts Descriptions

Assembly/Disassembly

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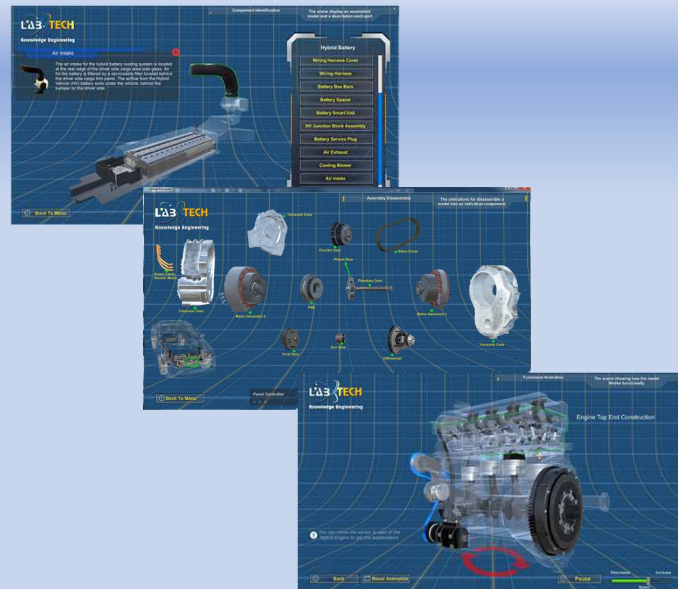
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AUTOMOTIVE AND TRANSPORTATION TECHNOLOGY

Subject Areas

1. Basic Engine Fundamentals
2. Automotive Electrical and Electronic Systems
3. Petrol Fuel Systems
4. Diesel Fuel Systems
5. Engine Management Systems
6. Manual Transmissions and Transaxles
7. Wheel Drive Systems
8. Propeller Shafts and Differential Gear
9. Brakes Systems
10. Steering and Suspension Systems
11. Air Conditioning and Heating Systems
12. Hybrid Vehicle
13. Electric Vehicle



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AIR CONDITIONING & REFRIGERATION TECHNOLOGY

Subject Areas

1. HVAC Fundamentals
2. Basic Electricity, Electronics and Controls
3. Refrigeration and Aircon Compressors
4. Refrigeration Systems
5. Air Conditioning Systems
6. Automotive Air Conditioning
7. HVAC Simulation Learning Modules



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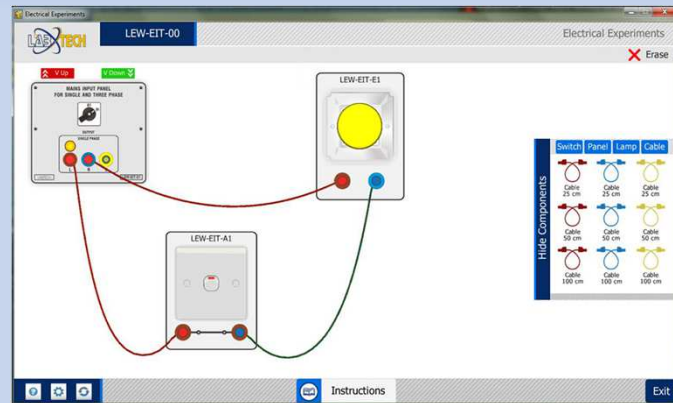
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ELECTRICAL & AUTOMATION TECHNOLOGY

Subject Areas

1. Basic Electrical Measurement
2. Electrical Motors and Generators
3. Transformers
4. Electrical Installation
5. Transducers and Measurement
6. PLC and Controls
7. Simulation Electrical Circuits



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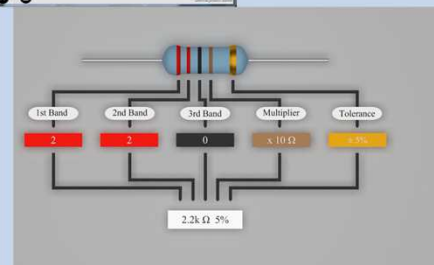
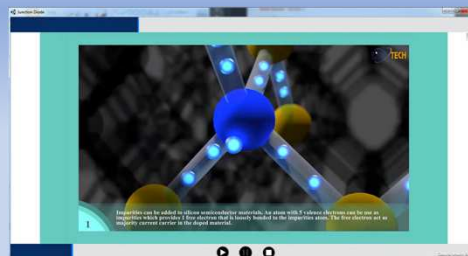
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ELECTRONICS TECHNOLOGY

Subject Areas

1. Circuit Theory
2. Analog Electronics
3. Digital Electronics



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GREEN TECHNOLOGY – RENEWABLE ENERGY

Subject Areas

1. Fundamentals of Electricity and Electric Power
2. Fundamentals of Electronics
3. Fundamentals of Green and Renewable Energy
4. Supporting Systems
5. Green Tech Systems Simulations



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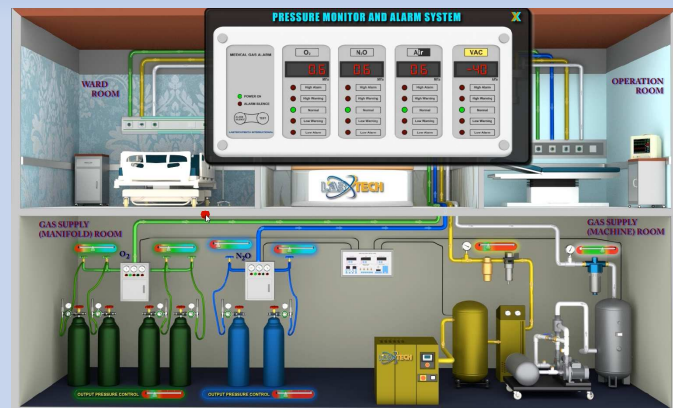
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BIOMEDICAL TRAINING SYSTEMS

Subject Areas

1. Fundamentals of Biomedical Electronics
2. Hospital Facility Systems
3. Medical Devices
4. Supporting Systems
5. Critical Care Systems



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LABTECH LMS WITH DIGITAL CONTENT

Bringing The Latest Technology To The Training World


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AUTOMOTIVE
and TRANSPORTATION

AUTOMOTIVE COURSES

- Basic Engine Fundamentals
- Automotive Electrical and Electronic Systems
- Petrol Fuel Systems
- Diesel Fuel Systems
- Engine Management Systems
- Manual Transmissions and Axles
- Automatic Transmissions and Transaxles
- Wheel Drive Systems
- Propeller Shafts and Differential Gear
- Brakes Systems
- Steering and Suspension Systems
- Air Conditioning and Heating Systems
- Hybrid Vehicle
- Electric Vehicle

FACULTY SELECTOR

AUTOMOT

HVAC

ELECTRIC

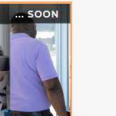
ELECTRON ...

... SOON

... SOON

... SOON



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LABTECH LMS WITH DIGITAL CONTENT

Bringing The Latest Technology To The Training World



ADB

RISTEKDIKTI
Polytechnic Education
Development Project

VIRTUAL LEARNING TRAINING FOR POLYTECHNIC LECTURER

ANNOUNCEMENTS

||

FACULTIES

- ▷ VOCATIONAL ENGLISH ⁽¹⁾
- ▷ AUTOMOTIVE & TRANSPORTATION ⁽¹⁴⁾
- ▷ AIR-CONDITIONING & REFRIGERATION ⁽⁷⁾
- ▷ INFORMATION COMMUNICATION TECHNOLOGY
- ▷ ASSESSMENT TRAINING GROUP 2-14 DEC 2019 ⁽⁶⁾

NAVIGATION

Expand all

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DEPLOYMENT MODES



USB
Single User
Teacher Led
Class Group
Learning



Class Based
Mobile Cart
1 to 1 Learning
Student Centred



Institute Based
Access throughout
the Institute
1 to 1 learning



Cluster Region
Institutions networked
together
1 to 1 learning



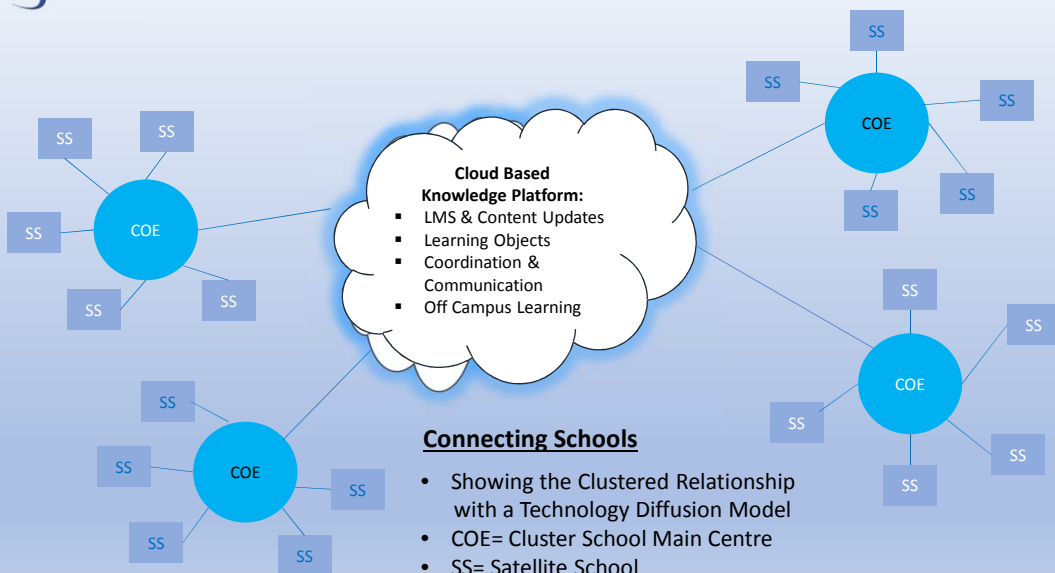
Cloud Based
National system
Learning
Anywhere
Anytime

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CLUSTER SCHOOL CONCEPT USING DIGITAL TECHNOLOGY



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THE BENEFITS - INSITUATION

- Creates a support system for both past and future technology initiatives
- Will increase success rate of technology initiatives (200-400%)
- Increased focus in school on ICT infusion
- More dynamic leadership opportunities around ICT issues
- Effective knowledge-sharing
- Monitoring of teacher development
- Monitoring of school development
- All teachers certified to standards
- Cost Savings - Can lower costs up-to 50% compared to conventional approaches
- Quicker Learning - Speeding up learning as Complex Principles are easier to understand
- Scalability and Quick Deployment - Can be quickly implemented to impact in a positive way
- Keeping Courses Up-to-Date - Quick & economical to keep courses current and relevant
- Reduces Trainers Time - Trainers can concentrate on practical skills rather than fundamentals

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THE BENEFITS - TEACHERS

- Upgrade refresher course for teachers, particularly in the new technologies and 21st Century Learning
- The Virtual TVET is a new way of learning created with modern connected people in mind. This type of learning will increase the learner motivation and therefore make the teachers job much easier.
- Targets the areas that the learners have difficulty in understanding. Using 3D gaming technology, detailed interactive animations can be created that allow the learner to visualize complicated processes and see operations, functions and relationships between they systems that would otherwise be difficult to explain.
- Reduces amount of teacher time spent of lectures, remedial learning and grading so that they can concentrate on mentoring practical skills in the lab.
- Improves information available to the teacher so as to better monitor and guide the class
- Teachers can handle more learners with less effort and increase the throughput in the labs.
- Prepares Teachers to be Industry 4.0 Ready!
- Leadership Opportunities

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THE BENEFITS - STUDENTS

- Provides Outstanding Visualizations – Creates real life experiences that is not possible in the traditional classroom
- Competency - Improving competency through activities and assessments
- Differentiated Learning - Allows for different learning pathways
- Deepening Knowledge - Students acquire deeper knowledge in the learning process
- Strengthens Fundamental Concepts - Through process and theory animations and simulations
- Learning Anytime, Anywhere - Can be deployed on and off training facility
- Language – eliminates the language barrier as every possible language can be implemented within the software
- Transitional Learning - Understand and apply concepts and fundamentals to real applications



VIRTUAL TVET: BENEFITS & IMPACT

- | | |
|-------------------------------------|-------------------------------------|
| 1. Cost Savings | 9. Scalability and Quick Deployment |
| 2. Quicker Learning | 10. Updates Older Labs |
| 3. Competency | 11. Keeping Courses Up-to-Date |
| 4. Increased Student Output | 12. Cluster School Approach |
| 5. Differentiated Learning | 13. Reduces Teachers Time |
| 6. Deepening Knowledge | 14. Transitional Learning |
| 7. Strengthens Fundamental Concepts | |
| 8. Learning Anytime, Anywhere | |



RECENT TRAINING RESULTS - ONLINE

FRONT WHEEL DRIVE SYSTEMS GRADES – ONLINE ONLY

First Name	Surname	Quiz: Pre-Test (Real)	Quiz: Post-Test (Real)	Difference
june	arthur p. banagodoss	62.86	77.14	14.28
jovel	c. petalcorin	65.71	97.14	31.43
jovert	cabaces	57.14	71.43	14.29
ronelio	f. pardilla jr.	60	77.14	17.14
arnold	leoben a. campued	40	54.29	14.29
bryan	m. landicho	60	91.43	31.43
jezreel	r. ferrer	48.57	94.29	45.72
Ronald	T. Solis	51.43	97.14	45.71
		55.71375	82.5	26.78625



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BLENDED LEARNING APPROACH



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RECENT TRAINING RESULTS – BLENDED ON AUTOTRONICS



NO	NAMA	HASIL PRE-TEST	HASIL POST-TEST	% KENAIKAN
1	Adi Isra	44,3%	92,9%	69,4%
2	Ali Rosad	51,4%	100,0%	69,4%
3	Anggun Saputra	40,0%	94,3%	77,6%
4	Beni Safari	35,7%	97,1%	87,8%
5	Dody Iskandar			
6	Doroslyn Majones Simamora	14,3%	100,0%	100,0%
7	Ebit Sutoto	52,9%	100,0%	67,3%
8	Edy Purwanto	47,1%	85,7%	55,1%
9	Elpandi Surbakti	34,3%	100,0%	93,9%
10	Febra Yulisman	67,1%	97,1%	42,9%
11	H. Samrul Fuad Nasution	35,7%	95,7%	85,7%
12	Lesmana Ginting	45,7%	98,6%	75,5%
13	Oki Putra	45,7%	94,3%	69,4%
14	Rahmatul Akbar	47,1%	82,9%	51,0%
15	Ricko Hendra Putra	41,4%	90,0%	69,4%
16	Siswo Ariyanto	37,1%	97,1%	85,7%
17	Sujadi	44,3%	100,0%	79,6%
18	Tri Darma Pratiwi	37,1%	80,0%	61,2%
19	Wisnu Anggun Prayitno	51,4%	90,0%	55,1%
20	Zulkifli	44,3%	100,0%	79,6%
Nilai rata-rata		43,0%	94,5%	73,6%

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RECENT TRAINING RESULTS – 21st CENTURY LEARNING

First Name	Surname	Institution	Quiz: Pre Test (Real)	Quiz: Post Test (Real)	Difference
Nur	Khamdi	Politeknik Caltex Riau	52.5%	90%	37.5%
Parulian	Silalahi	Politeknik Manufaktur Negeri Babel	57.5%	100%	42.5%
Moh Nur	Shodiq	Politeknik Negeri Banyuwangi	65.0%	98%	32.5%
Luthfiya	Ratna Sari	Politeknik Negeri Batam	60.0%	100%	40.0%
Abdullah	Sani	Politeknik Negeri Batam	70.0%	100%	30.0%
Hendawan	Soebhakti	Politeknik Negeri Batam	75.0%	100%	25.0%
Nadrah	Wivanius	Politeknik Negeri Batam	77.5%	95%	17.5%
Willy Permana	Putra	Politeknik Negeri Indramayu	55.0%	98%	42.5%
Riandini	Riandini	Politeknik Negeri Jakarta	77.5%	98%	20.0%
Aisyah	Salimah	Politeknik Negeri Jakarta	55.0%	90%	35.0%
I Putu	Dody Lesmana	Politeknik Negeri Jember	82.5%	100%	17.5%
Benny	Widyaman	Politeknik Negeri Jember	77.5%	90%	12.5%
Eko	Win Kenali	Politeknik Negeri Lampung	70.0%	95%	25.0%
Hanafiah	Hanafiah	Politeknik Negeri Lhokseumawe	47.5%	98%	50.0%
Mhd Daud	Pinem	Politeknik Negeri Medan	70.0%	88%	17.5%
Liliwanti	Liliwanti	Politeknik Negeri Padang	52.5%	93%	40.0%
Yuli	Yetri	Politeknik Negeri Padang	62.5%	98%	35.0%
Muas	M	Politeknik Negeri Ujung Pandang	60.0%	98%	37.5%
Afif	Zuhri Arlianto	Politeknik Perkapalan Negeri Surabaya	67.5%	98%	30.0%
Tri Anggarini	Yuniwati Foenay	Politeknik Pertanian Negeri Kupang	62.5%	90%	27.5%
Erna	Erna	Politeknik Pertanian Negeri Pangkep	72.5%	95%	22.5%
Tri	Tiyasmihadi		67.5%	85%	17.5%
			65.3%	95.1%	29.8%

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NEW TECHNOLOGY – AR/MR

Augmented Reality (AR) and Mixed Reality (MR) allows us to introduce digital learning and mix it with our physical and real surroundings. It has great potential for training and is already being used by industry particularly in the service sector and for guidance of various activities. Industry is using it to project expert real time assistance to remote technicians, to provide guidance on servicing tasks and to monitor complex processes and systems. Labtech is working hard on bringing this technology to the TVET classrooms so that we can learn in the same way that we will work for Industry 4.0.



NEW TECHNOLOGY - VR

Virtual Reality (VR) has been a hit with the gaming community, but it is also a serious tool for learning as well. It is perfect for immersive learning situations such as realistic simulators for teaching operational skills on large and expensive equipment such as aircraft, marine vessels and heavy equipment. At Labtech we are using this tool to create new types of learning experiences that will enhance the learning process by using the unique characteristics of VR for immersive learning.





12 REASONS CUSTOMERS CHOOSE LABTECH

- | | |
|--------------------------------------|---------------------------------------|
| 1. CONTINUAL INNOVATION | 9. STRATEGIC LOCATION |
| 2. IN-HOUSE FABRICATION | 10. EXPERTS IN EDUCATION |
| 3. EUROPEAN QUALITY AT ASIAN PRICES | 11. INDUSTRY PARTNERSHIPS |
| 4. MODULAR SYSTEMS | 12. INDUSTRY LEADING CUSTOMER SUPPORT |
| 5. RELEVANT TRAINING SYSTEMS | |
| 6. COMPLETE SOLUTIONS | |
| 7. CUSTOM MANUFACTURING CAPABILITIES | |
| 8. HISTORY OF RELIABILITY | |



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Many Thanks!!



Brad Ker

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