



Kenya Technical Trainers College
Home of Technical Education

UNESCO-UNEVOC
BILT

Event for Africa

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Chief Principal

Innovative approach to
greening TVETs using
technology and
Digitalization

Definition of terms

Technology

Technology is the application of knowledge to reach practical goals in a specifiable and reproducible way

Innovation

a substantial change in the way TVET is practiced in an institution, making it more relevant to the needs of the economy, society and environment. (UNESCO 2020)

Digitalization

the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; Digitalization moves beyond digitization

Innovative Approach

Willingness to make a tabula rasa of all preconceived ideas, to look at reality from a new point of view.

Innovative learning in TVET

- Blended Learning Approach (Hybrid Teaching)
- Apply the use of Flipped Classrooms
- Active learning

Flipped Classroom approach

The sequence of events is "flipped," with educational and instructional content delivered prior to the class session via online lectures, videos, or readings that students can access and review at their leisure.

Blended Learning Approach

blends technology based asynchronous/synchronous teaching method and **traditional** teaching method.

Active learning

actively engaging students with the **course material** through discussions, problem solving, case studies, role plays and other methods.

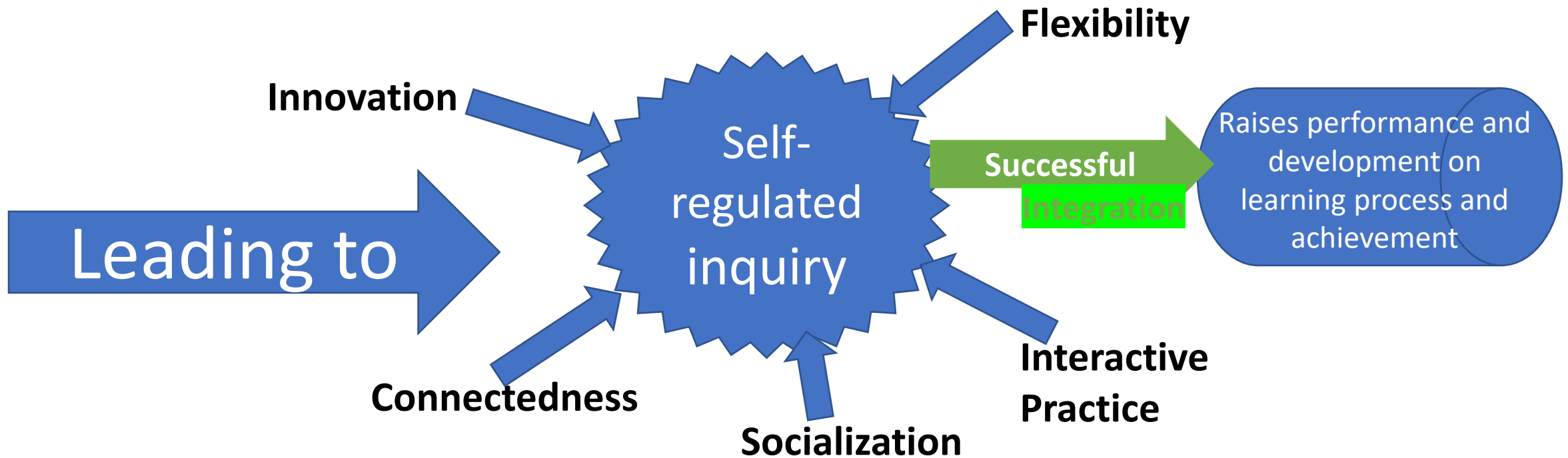
Use of Learning Management Systems

Use of UDL and FaB approaches for all **inclusive** learning



Impact of Innovative Learning in TVET

Innovative Learning Leads to: Engagement, Interaction, Collaboration and Meaningful learning



KTTC CASE STUDY

setting the
systems right



Building the systems first



Build Online learning platforms



Digitize Learning Resources



Set the infrastructure right



Impact

Build Online learning platforms

KTTC is
Hosting
also the
National
LMS

Moodle LMS on a desktop Computer. This could allow less than 300 concurrent users

Moved to cloud computing but hosted within a website. Limited space and slow

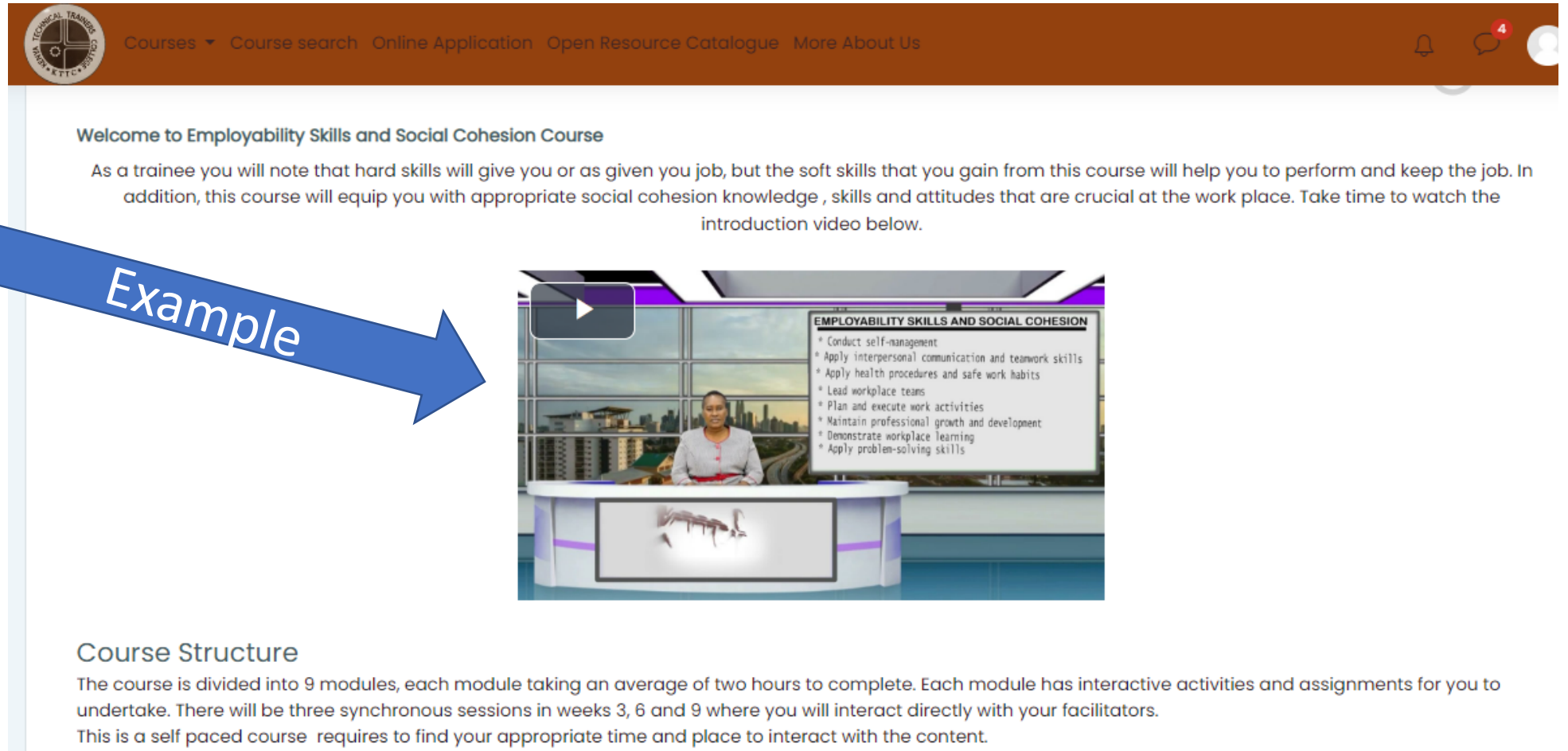
Procured a cloud server, that could hold 650 concurrent users, still this was not enough for KTTC population during exams

Expanded the capacity in terms of CPU, Memory, Hard Disk space and Data Transfer Rate Currently we are at: **8CPU, 16GB RAM, 100GB HDD, 8TB transfer**

Can hold over 2500 concurrent users during online exams and training

Digitize Learning Resources

- Term II is online and contents have been digitized .
- **NTVETLMS** hosts various online courses.
- **OERs Catalog** (collaboration with COL)



The screenshot shows a web interface for a course. At the top, there is a navigation bar with a logo on the left and links for 'Courses', 'Course search', 'Online Application', 'Open Resource Catalogue', and 'More About Us' in the center. On the right side of the navigation bar, there are icons for a notification bell, a chat bubble with a '4' indicator, and a user profile icon. Below the navigation bar, the main content area has a heading 'Welcome to Employability Skills and Social Cohesion Course'. Underneath the heading is a paragraph of introductory text. A large blue arrow labeled 'Example' points from the text 'have been digitized .' in the list on the left towards a video player. The video player shows a woman sitting at a desk in a studio setting. To her right is a whiteboard with the title 'EMPLOYABILITY SKILLS AND SOCIAL COHESION' and a list of bullet points. Below the video player, there is a section titled 'Course Structure' followed by a paragraph of text.

Example

Welcome to Employability Skills and Social Cohesion Course

As a trainee you will note that hard skills will give you or as given you job, but the soft skills that you gain from this course will help you to perform and keep the job. In addition, this course will equip you with appropriate social cohesion knowledge , skills and attitudes that are crucial at the work place. Take time to watch the introduction video below.

EMPLOYABILITY SKILLS AND SOCIAL COHESION

- Conduct self-management
- Apply interpersonal communication and teamwork skills
- Apply health procedures and safe work habits
- Lead workplace teams
- Plan and execute work activities
- Maintain professional growth and development
- Demonstrate workplace learning
- Apply problem-solving skills

Course Structure

The course is divided into 9 modules, each module taking an average of two hours to complete. Each module has interactive activities and assignments for you to undertake. There will be three synchronous sessions in weeks 3, 6 and 9 where you will interact directly with your facilitators. This is a self paced course requires to find your appropriate time and place to interact with the content.

Digitize Learning Resources

KTTC HOSTS

KTTC LMS

KTTC Learning Management System

NTVET LMS.

National TVET Learning Management System

TVET OERs

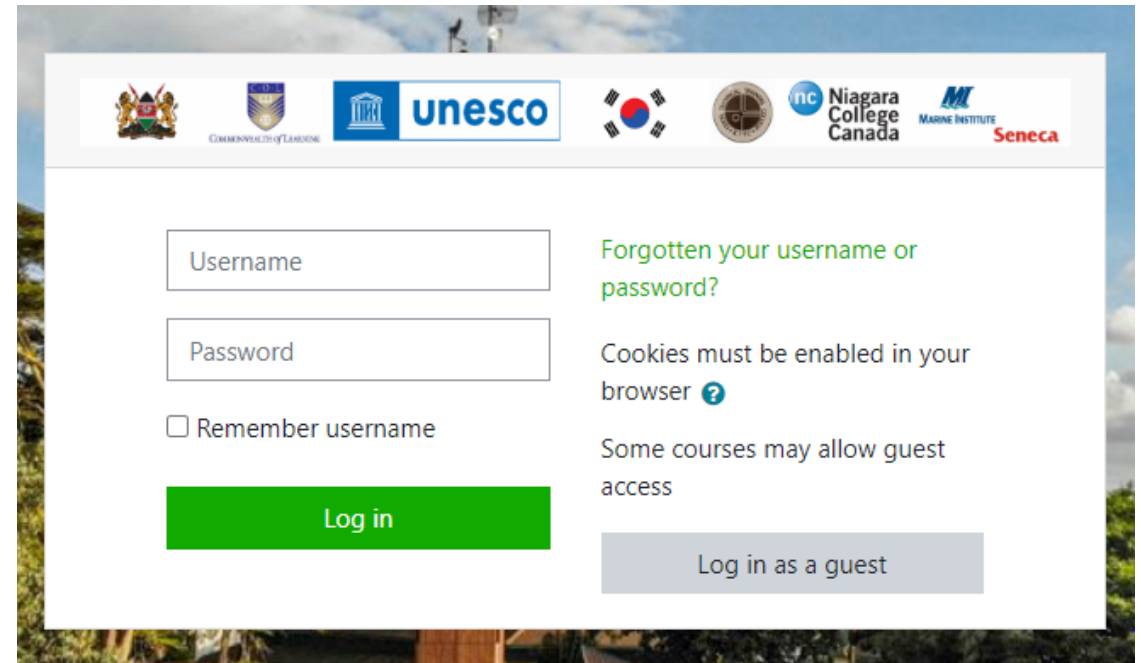
TVET Open Educational Resources Catalog

The screenshot shows the website's navigation bar with a menu icon, "National ODeL in TVET", "Courses", "Course search", "Online Application", "TVET OER Repository", and "More About Us". Below the navigation bar is a banner with logos for the Commonwealth of Learning, UNESCO, the South Korean government, Technical Training Institute, Niagara College Canada, Marine Institute, and Seneca. At the bottom, there is a search bar with the text "Search courses", a "Go" button, and a help icon.

Digitize Learning Resources

National LMS houses the following digitized contents:

- Manager's Course
- Trainers Course
- MoE/KTTC project
- Facilitating Using PowerPoint
- Labour Market Information - TVET 11
- Flexible Skills Development for Teachers
- Facilitating Online Courses
- Blended Learning in the Classroom
- Introduction to Disability Needs Assessments
- Introduction to Assistive Technologies
- Facilitating Online Courses
- Google developer Course



The screenshot shows a login interface for a National Learning Management System (LMS). At the top, there is a navigation bar with logos for UNESCO, Commonwealth of Learning, and other partners. Below this, the login form consists of two input fields: 'Username' and 'Password'. A checkbox labeled 'Remember username' is positioned below the password field. A prominent green 'Log in' button is located at the bottom of the form. To the right of the form, there are several informational elements: a green link for 'Forgotten your username or password?', a message stating 'Cookies must be enabled in your browser' with a help icon, and a note that 'Some courses may allow guest access'. A grey 'Log in as a guest' button is positioned at the bottom right of the login area.

Through support from various partners, the online courses are offered free,

Set the infrastructure right

To ease the development of online courses and digitization of the same. KTTC has;

- Has developed state of art studio for content creation
- Increased internet bandwidth to 100MBPS; the internet increases during exams to 150MBPS
- Developed a TVET hub has been developed for training android developers (support by google)
- Artificial Intelligence Lab been developed. This will be for use by all TVET institutes (support by Microsoft)
- Completing 8 virtual training booths for those training online; the booths has a desktop, wall screen, Wacom screen incase one has to demonstrate something through writing, a phone for support etc

IMPACT

The table summarizes the impact that Innovative approach to greening TVETs using technology and Digitalization had so far

Activity	Number impacted
Online Trainer courses	600
TVET trainers during COVID – 19 pandemic	Over 3000 trainers
Bear II managers and Trainer training	138
YAW TVET 11 – Trainers from polytechnics	26
Training of TVET managers under Ministry of Education	3115
Online assessment of KTTC trainees	

IMPACT

- Reduced printing – Notes online and online examinations
- Improved Research
- Promotion of Innovative ideas - Use of Raspberry Pi to mitigate internet connectivity issue in the informal sector (Juakali sector)



KTTC CONTENT
DEVELOPMENT STUDIO





Thank You