

The New Power Energy Labs in the Saudi Electric Services Polytechnic

“ An example for excellence in technical education and industrial training in Saudi Arabia”

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Saudi Electric Services Polytechnic (SESP)

- SESP is non-profit tertiary education institution
- Based in Baish in Saudi Arabia's Jizan province
- Public-private partnership
- Opened in September 2012
- Student intake of 430 male trainees
- Faculty of 58 teachers
- 2.5-year training program
- Trainees are high school graduates

Structure of Vocational Training in KSA

**TVTC
Colleges**

181 Colleges

**Colleges of
Excellence**

↑ Colleges

**Industrial
Strategic
Partnership**

**20+ Colleges
(in progress)**

Vision and Mission

Industrial Strategic Partnership

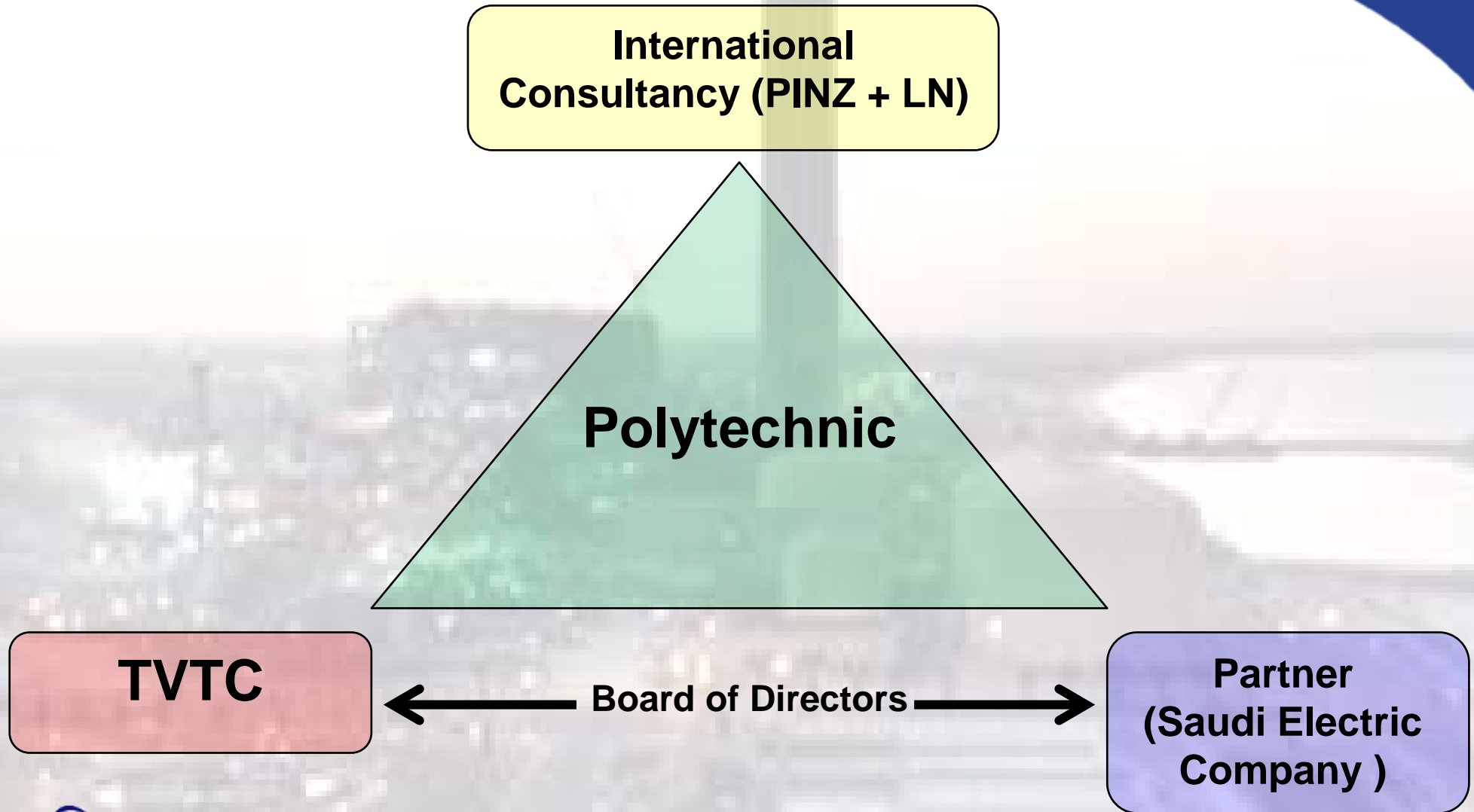
Vision

- To achieve partnerships with private sectors leading to establishing and Saudiaizing technical and vocational jobs and supporting technology transfer

Mission

- Establishing partnerships with private sectors to build and operate excellent polytechnics that shall guarantee their trainees future jobs as they enroll.

Saudi Electric Services Polytechnic



Saudi Electric Service Polytechnic

TVTC

Building
IT
Operational
Licensing
Regulation

Partner (Saudi Electric)

Jobs Guaranty
Work
Environment
On The Job
Training

International Consultancy (PINZ & LN)

Administration
Train-the-trainer
Curricular
Development
Training
equipment

Role of Saudi Electricity

- Providing Specialized Equipment
- Training program includes on the job training
- Enable Saudi students for careers in Saudi Electricity Company
- Support the Saudization of the workforce of The Kingdom of Saudi Arabia

Role of TVTC

- Buildings and Infrastructure
- The labs and basic equipment
- The IT, PCs, networks and connections
- The operational license and system and means of operation
- Covering the training costs (US\$ 9,000 per trainee per year)
- Providing trainees with a monthly stipend (US\$ 4,800 per trainee per year)

Role of PINZ and Lucas Nuelle

- Staff management and development
- Review of progress and further recommendations for systematic change
- Institutional Strategic Framework
- Development of performance management policy and procedures
- Consolidation of job descriptions and master templates for key job categories
- Developing an integrated curricula and training system approach

Saudi Electric Service Polytechnic



SESP Diploma

- Diploma in Operational and Maintenance Engineering
 - Power Plant Operators
 - Power Plant Maintenance – Electrical
 - Power Plant Maintenance – Mechanical
 - Power Plant Maintenance – Instrumentation
 - Power Service Technicians – Substation and Transmission
 - Network Operators – Distribution
 - Power Systems Protection Technicians
 - Cableman Jointer

SESP Diploma – Project Brief

Expected to set the standard for Power Generation, Transmission and Distribution training not only in KSA, but in the gulf region

- Provide specific training to prepare technicians and operators for SEC
- Internationally Recognised Program
- Targeted to Level 3 Tradesman Qualification

SESP Diploma – Creation

- Training Needs Analysis was carried out in May/June 2012
- Subject matter experts from NZ travelled to KSA to visit several SEC sites where each specialization was centered.
- Focus of outcomes compared to SQA (Scottish Qualifications Authority)
- Curriculum developed by Wintech NZ (Waikato Institute of Technology)
- Didactic training equipment supplied by Lucas-Nuelle

SESP Diploma – Year One

- The Year One program comprises:
 - English
 - Technical bridging subjects
 - Physics
 - Mathematics
 - Electrical Engineering
 - Technical drawing
 - Occupational Health and Safety

These subjects serve as prerequisite for Year Two

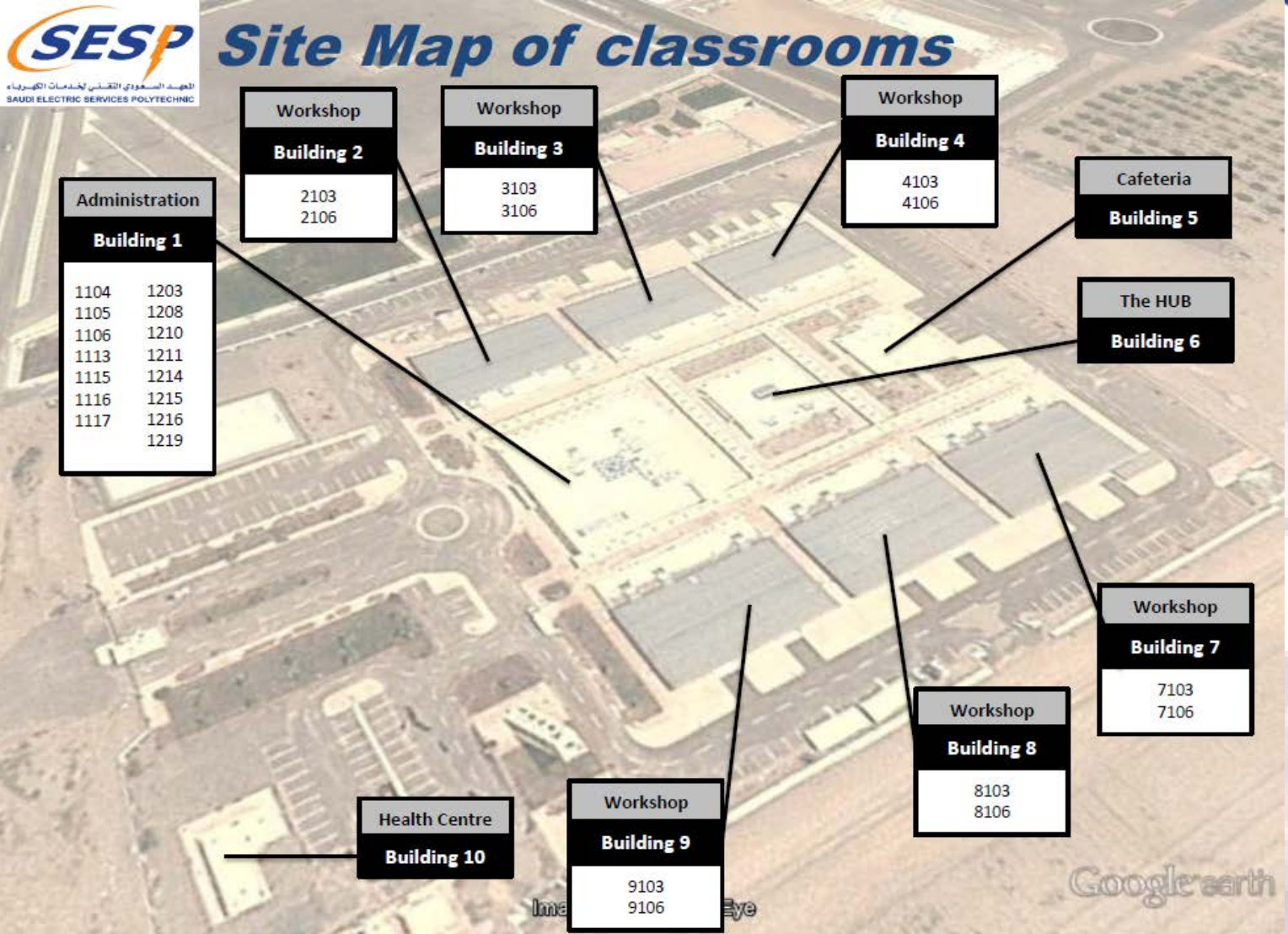
SESP Diploma – Year Two

- The Year Two program comprises:
 - Core Mechanical and Electrical trimester
 - Specialization into one of 8 strands earlier identified

These training facilities are designed to replicate the SEC operational environment as far is practicable

Health and safety issues embedded in all activities

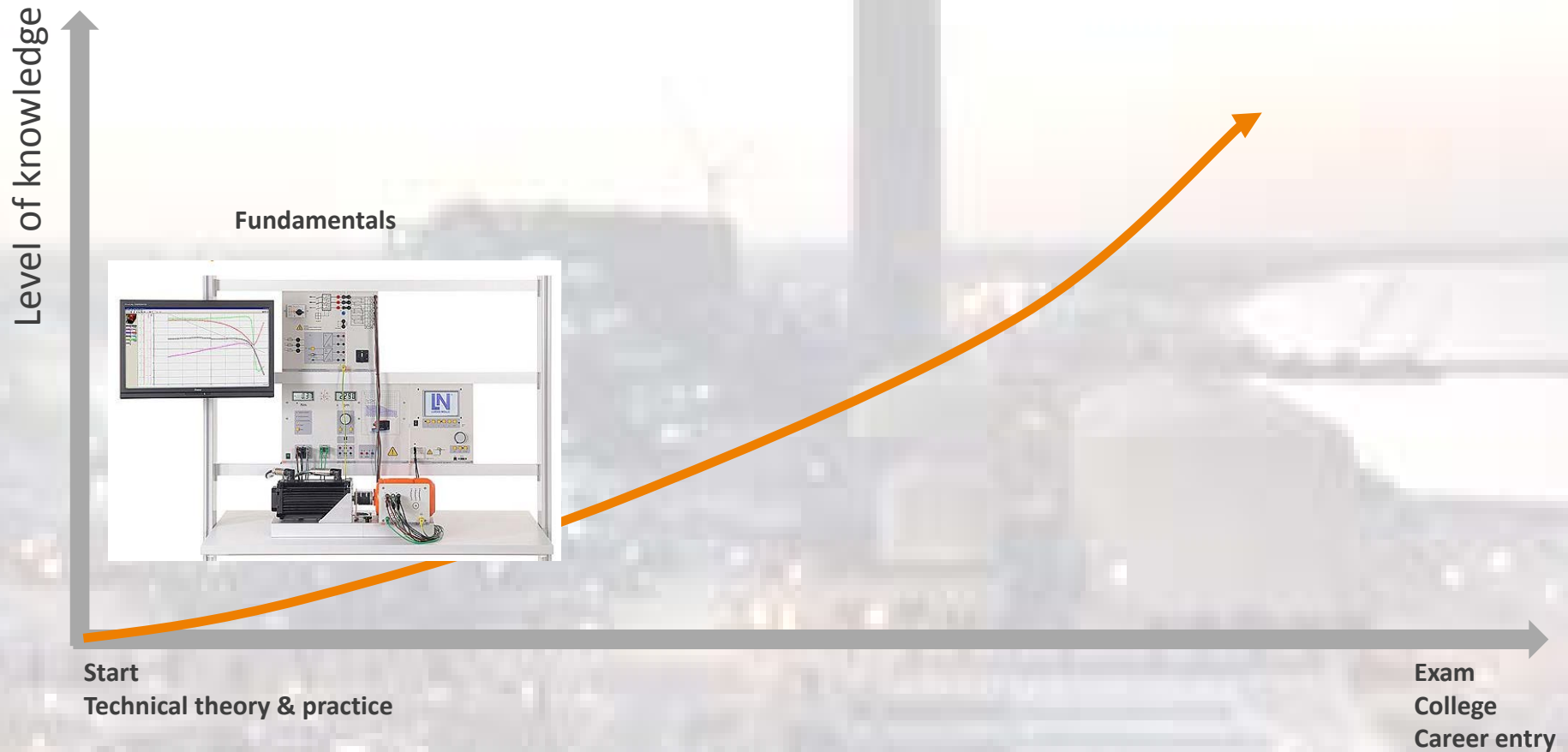
Site Layout of SESP



Didactical Concept Workshops

- 6 multi purpose workshops
 - The specializations “come to” the equipment rather than the equipment “coming to them”
- PBL - Practice/Problem Based Learning
 - PINZ and the SME Wintech recommended after many years of research and implementation.
- Real industrial equipment prepared specifically for training

Didactical Approach



Lucas-Nuelle and PBL

- Labsoft training program requires students to research and conduct experiments that combine both theory and practical skills in a blended way.
- Students are unaware of learning theory in the traditional way.
- Important stepping stone between theory and practical, developing necessary dexterity skills needed for the future.

Workshop for Fundamental Training



Didactical Approach



Workshop Industry Training

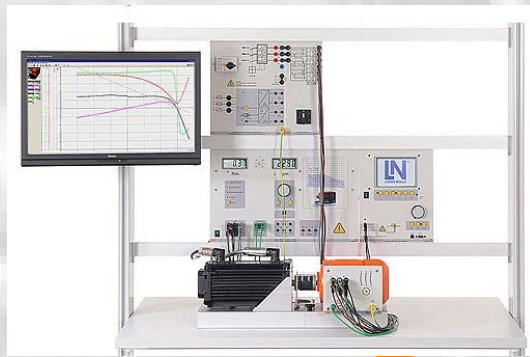
- Actual equipment that is used in the power plants
- Specializations into the 8 streams
- Designed to replicate the SEC working environment as close as possible

Didactical Approach

Level of knowledge



Fundamentals



Industrial Training



On-The-Job-Training



Start
Technical theory & practice

Exam
College
Career entry

On Job Training

- Six month supervised on job training placement relevant to specialization
- A chance to consolidate their learning on the job and demonstrate the required technical and professional skills expected of trained entry level employees.