



# AFRICA CENTER OF EXCELLENCE IN ENERGY FOR SUSTAINABLE DEVELOPMENT presentation



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**ACE-ESD Head of Research**

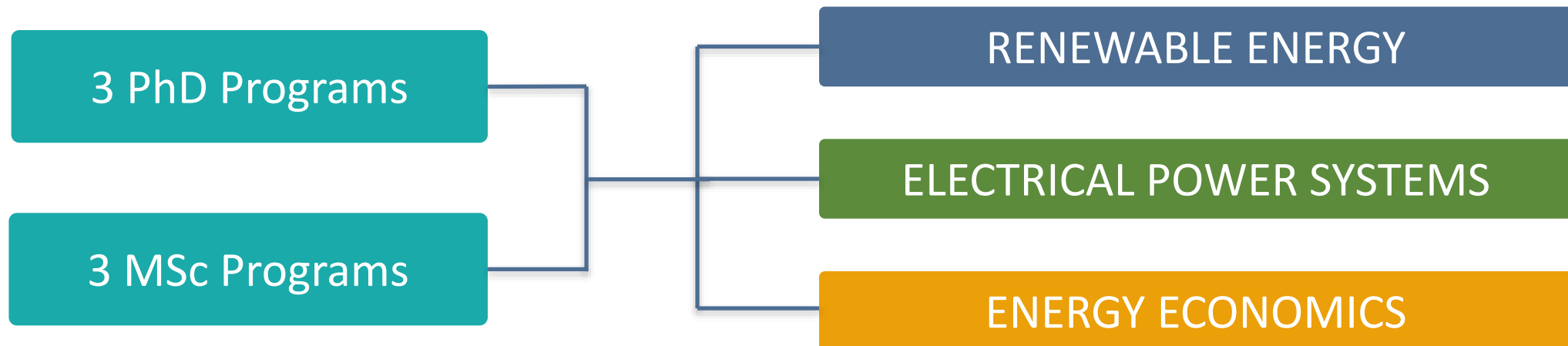
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[www.aceesd.ur.ac.rw](http://www.aceesd.ur.ac.rw) | [www.ur.ac.rw](http://www.ur.ac.rw) | Follow us:  @ace-esd  @ur.aceesd

## Our Objectives

- ▶ To provide national and regional capacity-building (MSc & PhD) to cover energy needs for sustainable development.
- ▶ To develop and transfer appropriate energy technologies for sustainable development at the national and regional levels.
- ▶ To contribute and strengthen cooperation between industry and academia in the field of clean energy.
- ▶ To provide energy research, consultancy and advisory services to both public and private organizations

## Our Programs



## Students Enrolled:

PhD

We have 33 PhD Students

- 21 from National
- 12 from Regional

MSc

We have currently 46 MSc students who commenced their classes. 14 of them are regional students.

## Staff and Student Exchange:

- ❖ 1 staff and 1 PhD went to CSU's Powerhouse Energy Campus.
- ❖ 2 PhD Students went in Nairobi for THE MICRO-GRID ACADEMY TRAINING
- ❖ 1 PhD went to South Africa and 1 Staff to DRC
- ❖ Professors from Austria and Ghana came for Short course and supervision of PhD student.

## :Conducted Short Trainings

We organized:

- 1 training on E-Resources for PhD
- 2 short courses
- 8 Public Lectures
  - And a total of 374 Participants

## :Publications

We have 46 Publications



Rwanda



Uganda



Kenya



Tanzania



South Sudan



Malawi



Nigeria



Zambia



Zimbabwe

## High E-Tech Energy Laboratory:

The Lab has different research area:

- ◇ Control Strategy of Micro grid and Smart-grid
- ◇ Industrial Photovoltaic system
- ◇ Wind Power Plant , small wind with Storage
- ◇ Hydro Power Plant and Pump Storage
- ◇ High Voltage direct current transmission line.

Usefully for Academics and Industrials

## Partners Supervisors:

The center has a partnership with 13 Supervisors Came from (African, Europe, USA and ASIA)

## MoUs for the Center:

- † The ACE-ESD has Signed 3 MoUs
- † And 4 MoUs are under Process

## :Income Generation

- Submission of incubation Center proposal to IUCEA: We passed through first process of selection, physical assessment is ongoing.

## Our Partners





# SHORT COURSES & TRAININGS AND MoU SIGNINGS









ACE-ESD (AFRICAN CENTRE OF EXCELLENCE IN ENERGY FOR SUSTAINABLE DEVELOPMENT)

LABS ROOMS



STAFF OFFICES



PhD students Office



MASTERS CLASS

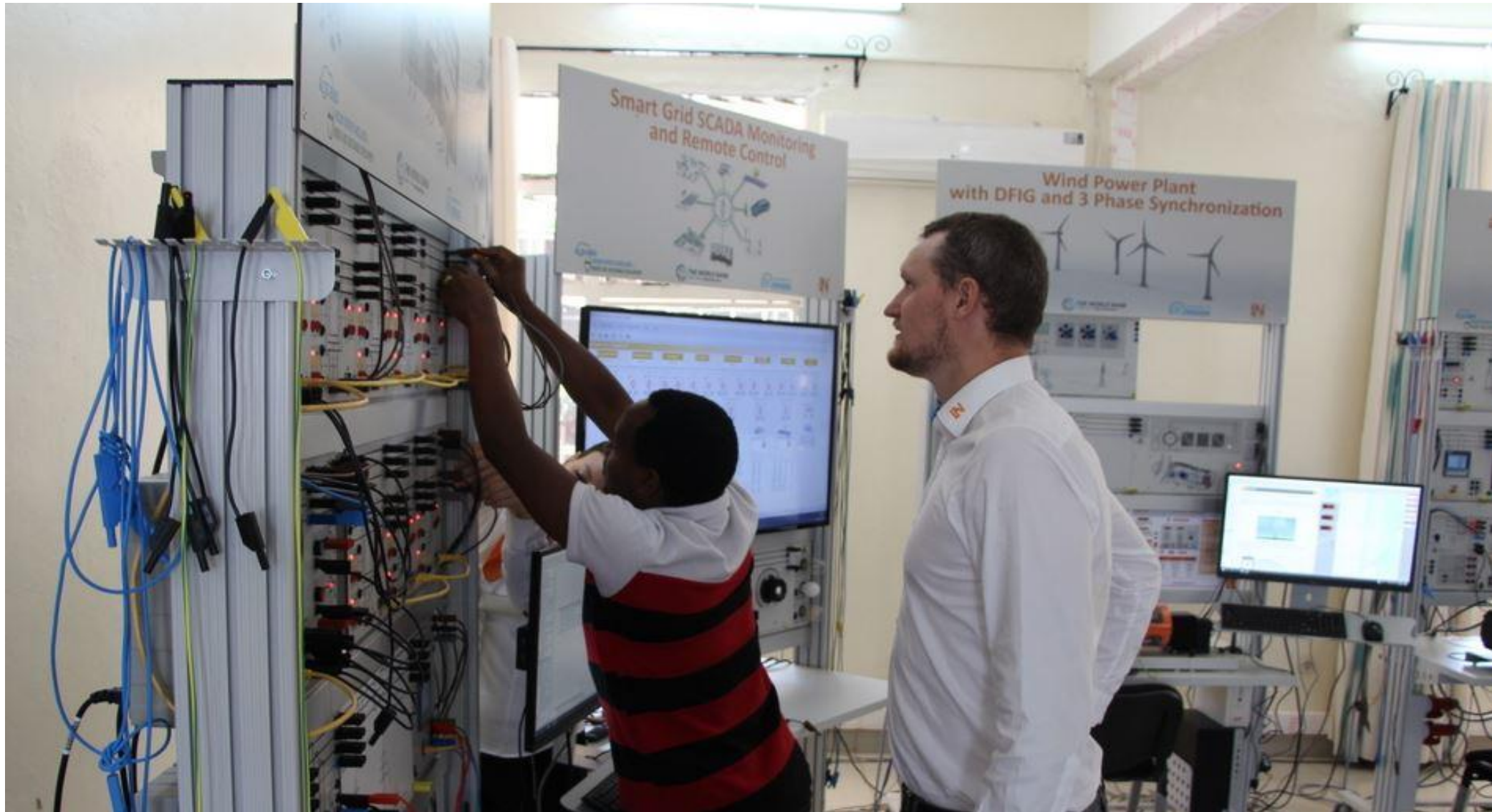




# LABORATORIES







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## RENEWABLE ENERGY

Smart & Micro-grid Technologies (Wind, Solar, Mini-Hydro, Biomass, Geothermal); Battery management systems (BMS): This involves the renewable energy control, embedded system and power electronics skills; Energy storage system (ESS: This involves the renewable energy control, embedded system and power electronics skills; Renewable energy (bioenergy including bio-fuels, solar energy, wind energy, etc.)



## ELECTRICAL POWER SYSTEMS

Power system dynamics, Power Electronics for renewable energy, generation, transmission and distribution systems, Control systems (stochastic systems, stability analysis, system identification), industrial controls, and optimization Smart & micro-grid system, Grid connected inverter optimization, Off grid connected inverter design, testing and control, Grid connected multilevel inverter design, Electrical Vehicle(EV): This involves the renewable energy control, embedded system and power electronics skills



## ENERGY ECONOMICS

Economic Evaluation of Renewable Energy Technologies, Inter-State Energy Trade Policy, Utilities Management, Energy environment, Energy benchmarking, Energy pricing

**THANK YOU**