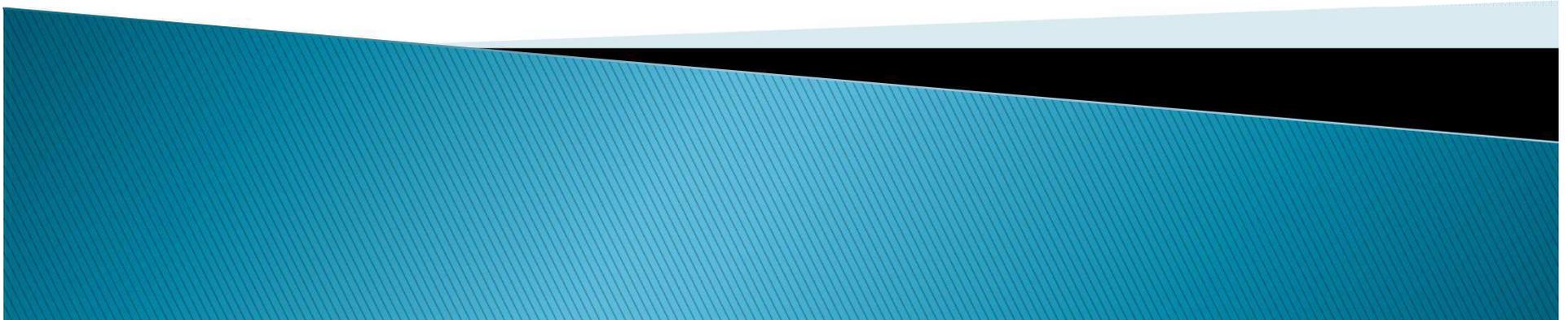


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# Promoting Professional Career through Vocational Based Higher Education

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Manila, PHILIPPINES  
December 10 -12, 2013



# Background

- ▶ High demanding qualified/certified higher technicians



# Issues

- ▶ Developing the Implementation of Indonesian Qualification Framework (IQF)
- ▶ How to perform high quality education and training that match with the industrial needs
- ▶ Establishing assessment process that comply with certain world Class Professional Association/Society



# Objectives

- ▶ Increasing the relevance of education and training to industrial needs
- ▶ Establishing authorized training and examination centre covering such competencies relevant to industrial needs
- ▶ Encouraging industrial involvement in teaching and learning processes
- ▶ Bringing in industrial culture to polytechnic



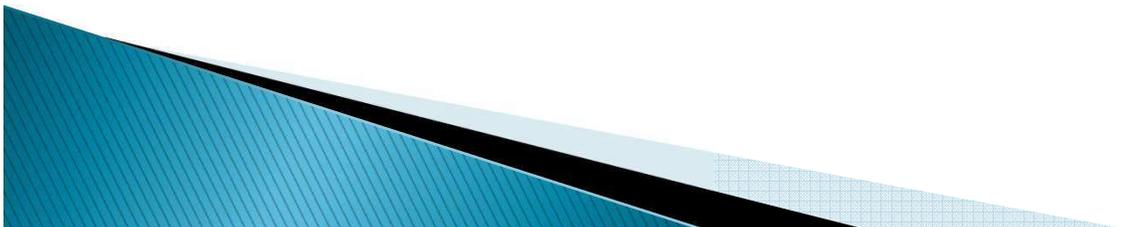
# Rational

- ▶ Implementing production activities within teaching and learning processes:
  - produce qualified students/graduates that familiar with processes, codes and standar (saleable/commercial products)
  - implant Quality, Cost, and Delivery (QCD) principles among the students, teaching staff, and it will end up with the establishment of entrepreneurial environment



# Rational

- ▶ Utilization of the possessed equipment for production activities requires properly maintained equipment to assure well running productions
- ▶ Life cycle of product is getting shorter, and more complicated models, it will keep the update position of the polytechnic



# Challenges

- ▶ Developing a good relationship, partnerships, co-operation with industries
- ▶ Attracting qualified teaching staff and good instructors staying longer at campus
- ▶ Maintaining the relevance of curriculum of the polytechnic to industrial needs
- ▶ Maintaining equipment and its accessories functioning well and updating
- ▶ Education in polytechnics is less popular compare those in universities



# Actions

- Establishing teaching factory
- Implementing production based education
- Set up education resulting in commercial learning product
- Integrated resources management
- Intensifying the role of IAB (Industrial Advisory Board)







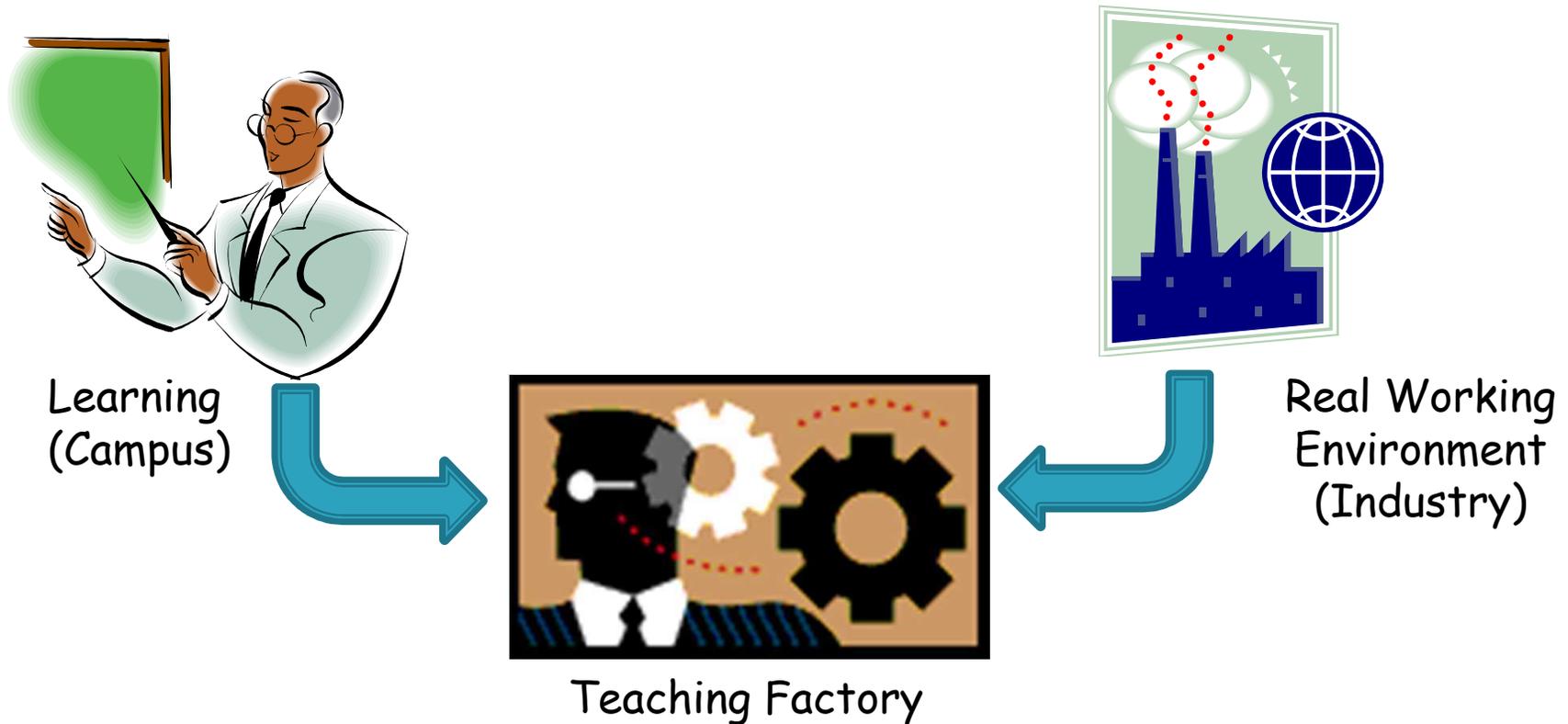
# Welding Engineering Study Pattern

D4 (4 Years Diploma )

Welding Engineering

4th year	Final Project	Professional
	On The Job Training	
3rd year	Welding Inspector	Advance Technology
	Corrosion	
	Design, Fabrication, Construction and Inspection	
2nd year	Welding Metalurgy	Sense of EFFICIENCY
	Destructive Test / Non Destructive Test	
	Applied WeldingTechnology	
1st year	Occupational Health and Safety	Sense of QUALITY
	Basic Welding /Technology	
	Bench-Work	

# The Teaching Factory Concept in Batam State Polytechnic



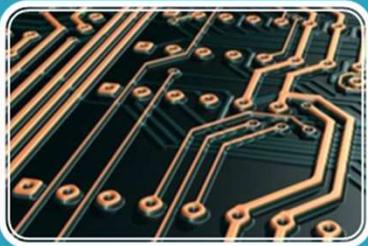
*-The teaching factory concept-* is a concept which adopts a practice and application-oriented training approach that combines the learning and real working environment.

# Teaching Factory for Electronic Manufacturing



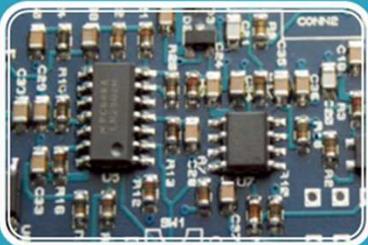
## IC Packaging

- Silicon Wafer: diameter 300 mm
- Packaged IC: TQFP 100 pins
- Capacity : 4000 chip per 8 hours



## PCB Manufacturing

- Up to 6 layers
- 150  $\mu\text{m}$  (track width), 0.3 mm (trough hole)
- Capacity : 3 PCBs (A4) single layer, or 2 PCBs (A4) double layers, or 1 PCBs four/eight layers per 8 hours



## PCB Assembly

- Chip 1608 : 21,000 CPH,
- SOP : 15,000 CPH,
- QFP : 5,500 CPH
- Capacity : 500 PCBs per 8 hours

# Clean Room Facility



Two classes of Clean room facility are certified by NEBB :  
1. Class 10.000 for IC Packaging  
2. Class 100.000 for PCB Manufacturing



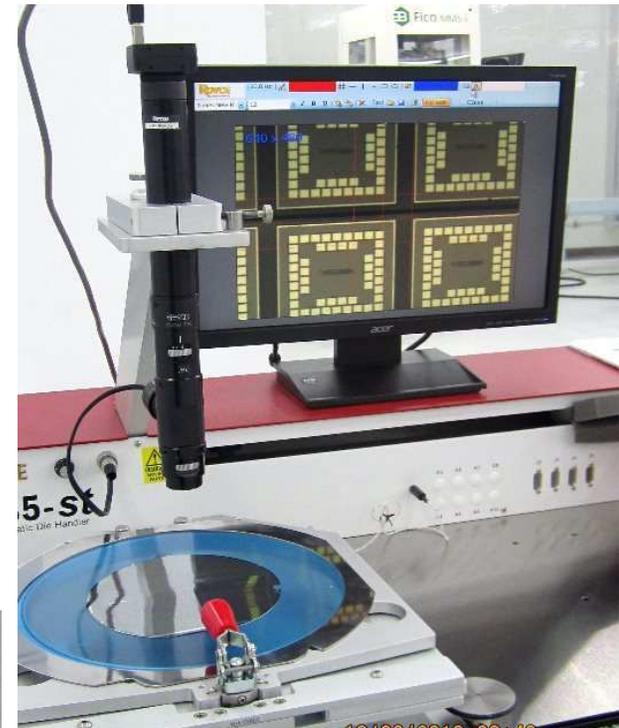
**National Environmental  
Balancing Bureau  
8575 Grovemont Circle  
Gaithersburg, Maryland, US  
20877**

**PROCEDURAL STANDARDS FOR CERTIFIED  
TESTING OF CLEANROOMS**

# IC Packaging Equipments



Wafer Dicing



Semi Automatic Die Hand



Die Bonder

# ADB PROGRAMME FOR STATE POLYTECHNIC OF



## The development of Teaching Factory of Food and Beverage with cooperation with local industries:

### 1. Food Teaching Factory

- Modified Cassava Flour (Mocaf) become Cassava Noodle
- Producing some Fruit Products

### 2. Beverage Teaching Factory

- Mineral Water
- Varieties of fruit juice

# Students Activities in Teaching Factory



# The facilities of Teaching Factory



# The benefits of having Teaching Factory

- ▶ Providing references for students and society to adapt competency or Indonesian Qualification Framework.
- ▶ Improving skills for students especially for vocational education such polytechnic.
- ▶ Reducing unemployment in Indonesia
- ▶ Helping students or graduates to get better career in the future.



# The advantages

- ▶ Gaining the first professional experiences when performing OJT
- ▶ Diploma Certificate + Competency/Professional Certificat
- ▶ Shortening the waiting time to get the first proper job, thus accelerate professional career attainment.

