EMERSON EXCHANGE

# A Practical Approach to Competency Development

Session ID: 8-1962

# Disclaimer

The information and/or opinions expressed in this presentation are those of the authors and do not necessarily represent official policy or position of Emerson Exchange or Emerson Automation Solutions.

# Photography & Video Recording Policy

Photography and audio/video recording is not permitted in any session, or in the exhibition areas, without press credentials or written permission from the Emerson Exchange Board of Directors.

Inquiries should be directed to:

**EmersonExchange@Emerson.com**

Thank you!


# Imran Babar

Director Lifecycle Services

Emerson Middle East & Africa

Imran.Babar@emerson.com

+971 55 496039

# The Problem

- Retiring workforce
- Localization Drive
- Facilities expansion and modernization
- Significant advancement in technology with Industry 4.0 and IIOT
- Lack of skilled workforce
- Industry readiness of Incoming graduate and technicisms
- Lack of training programs that focus on the development of specific job roles
- Generic versus Specific Programs
- Assessments, measurement and accountability
- Future Development Plans


Source area if needed

# Do you remember this event?

# Training Drives Business Results for Organizations

## The Dynamics of Modern Workforce

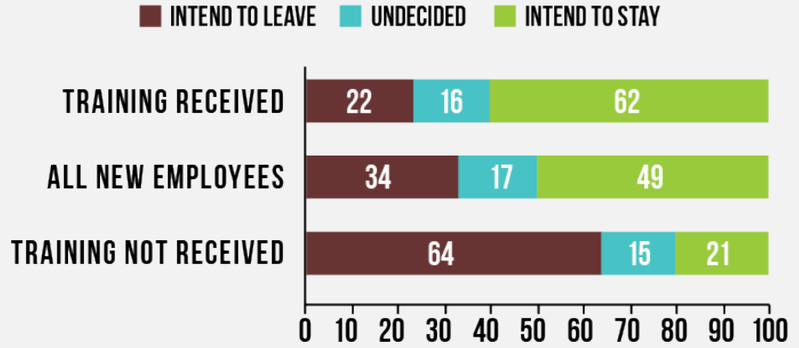
**65%**
of global leaders cite **"Talent & Leadership Shortages"** as their **#1 business challenge**

**90%**
of organizations **do not have** all the **skills** they need to be successful

**74**
million of next generation work force who are employed **are not skilled** to fill the **skills** gap .

## The issue is real and costly :

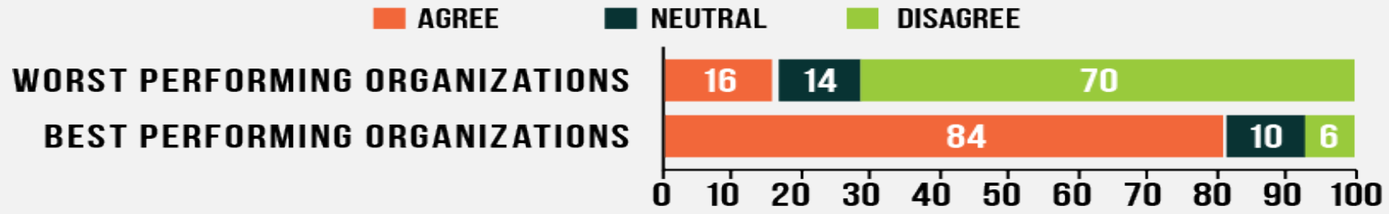
**Under-trained employees** are far more likely to look **elsewhere**




Replacement costs often reach **200%** of an employee's annual salary

## Investment in training pays off:

84% of employees in Best Performing Organizations are receiving the training they need






Source: IBM Corporation Research Report on "The Value of Training"

# Emerson Broad Coverage of Technology and Applications

## Software and Systems

- Asset Performance Solutions
- Distributed Control Systems
- Safety Instrumented Systems
- SCADA Systems
- Programmable Logic Controllers
- Reliability Strategies
- Asset Health Monitoring
- Vibration Analysis

## Measurement Solutions

- Pressure, Temperature, Flow
- Level Measurement
- Tank Gauging
- Liquid Analysis
- Gas Analysis
- Corrosion
- Fiscal Measurement
- Wireless Networks

## Final Controls

- Control Valves
- Actuators
- Regulators
- Relief Valves

## Great Depth of Resources and Expertise

467 Certified Instructors

67 Training Centers

28,000 Student Enrollments Annually

300+ Course Offerings

68 Years Educational Expertise


IACET Accredited

Hands-on Practical Training

# What is Competency

com·pe·tence

/ˈkämpədəns/

Learn to pronounce

See definitions in:

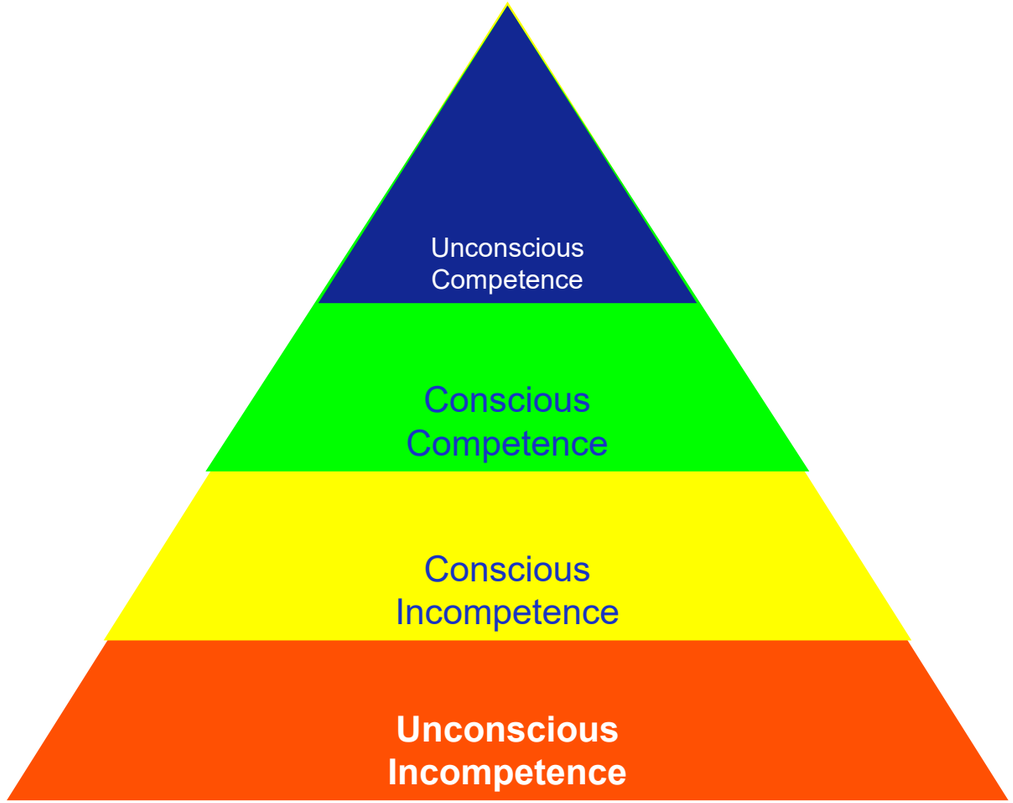
All | Law | Linguistics | Biology | Medicine

*noun*

noun: **competency**

1. the ability to do something successfully or efficiently.
   "the players displayed varying degrees of competence"

   Similar: capability | ability | competency | capacity | proficiency



# Traditional Training Vs Competency Development

## Tradition Training

- Train opportunistically as new technologies are added
- Send a few people to training as schedules allow
- Train on broad topics that may or may not be relevant
- Training effectiveness difficult to quantify
- Lengthy process to train new employees

## Competency Development

- Train based on skills required in job roles based on long-term plan
- Set up training to address multiple students all at once
- Train only on topics that are relevant to your installation
- Pre/post-assessments track effectiveness of training
- Fast process to train new employees

# Process for Competency Development

Emerson process to **assess** the **skills gap** and **plan** a learning path


**ASSESS** the competency levels or use existent skills gap

**PLAN** the training paths per job roles

**IMPLEMENT** and assist with work procedures

**REVIEW** the progress and update paths

Source area if needed

# Competency Development Consulting Process

## Assess

Training Assessment Kick Off Meeting

Define Business Objectives, Job Roles, Competency Models, KPI's, SME's

Define constraints and parameters of Learning Events

Conduct skills gap analysis

## Plan

Define Training program deliverables

Identify the resources (Internal & External)

Define key learning mile stones

Prepare Schedule

Submit Proposal

## Implement

Program Kick Off with Students

Pre – Course Assessment

Deliver the Training Program

Post – Course Assessment

Kick Off Capstone Project

## Review

Final Post Assessment Theory & Practical

On Site Coaching

Capstone Project Development

Final Presentation

Graduation

# Key Elements of Designing the Program

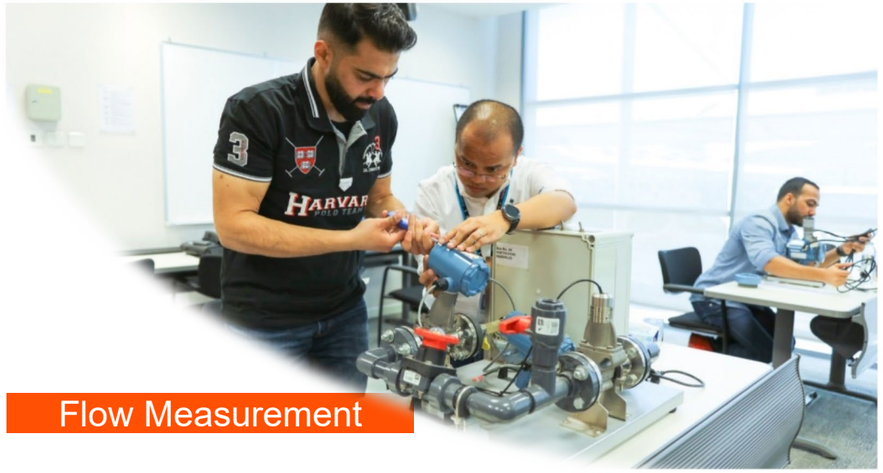
- Identification of Job Role
  - I&C Engineer, I&C Technicians, Process Control Engineers, Measurement Engineers, Fresh Graduates
- Identification of desired competencies with proficiency levels
- Development of a detailed training plan with day wise agenda and rigorous review
- Development of Execution Plan, no of students, phases, time and budget
- Consideration for Soft Skills and Team Building
- Development of Learning Plans 50-50 Theory and Practical
- Use of virtual and remote learning facilities
- Development of Labs
- Development of Assessments
- Dedicated Program Manager

Source area if needed

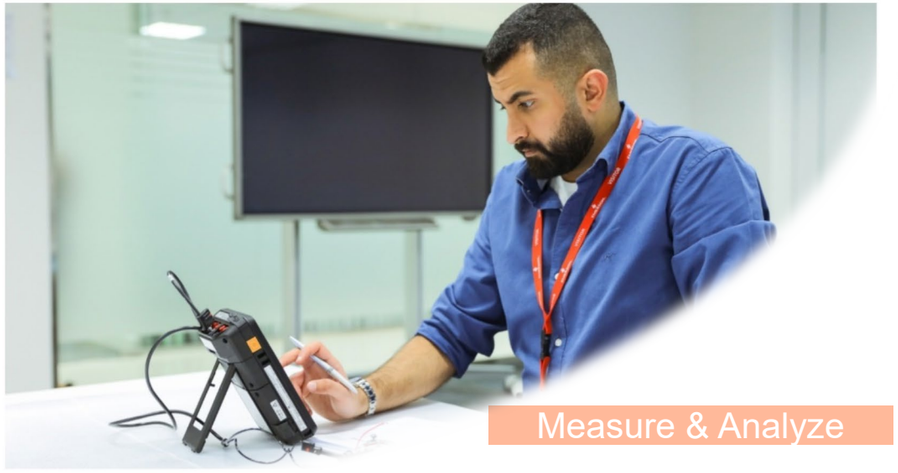
# Practical Hands-on Training Facilities are Essential

Final Control

System & Solutions



Flow Measurement



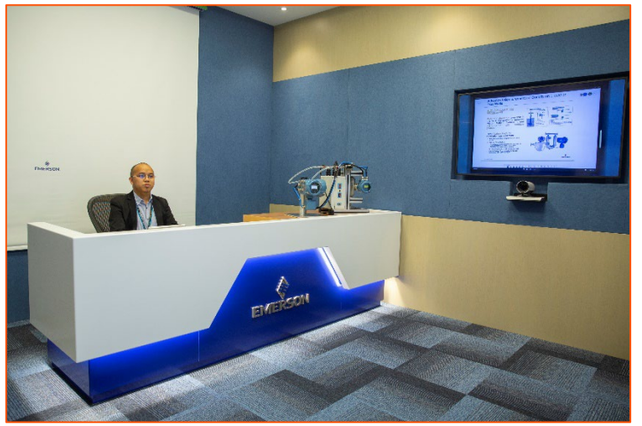
Measure & Analyze

Source area if needed

# Digital Classroom is a Key Element in Limited Mobility

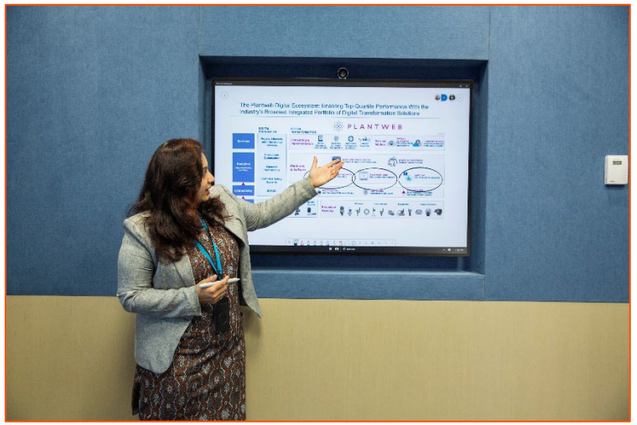
## Challenge

- It is a significant investment for companies to provide training to their employees. More than simply the cost of the class and travel, there is the time spent away from the plant and the work that doesn't get done during that time.




## Solution: Digital Classroom

- *"The interaction between instructor and student was very much like being in actual classroom."*
- *"I enjoyed the hands-on aspect of the class. There was not much downtime which helped keep me engaged in the content."*
- *"I liked best that I was still at my office."*




Source area if needed

# Case Study #1: National Oil Company Fast On-Boarding

## Challenge

- Competency Develop of National Staff was part of organization vision 2030
- Competency a key challenge
  - Skills Gaps
  - Replacing workforce
- Technical Competency for I&C Maintenance Staff
  - Engineers
  - Technicians
- Training should be hands-on
- Use bold approach to deliver

## Solution

Identification

- Identified 12 Core Competencies
- Definition of each competency
- Proficiency Ratings Defined

Program

- Customized Curriculum
- Installed base mapping for products
- 12 Weeks Program
- Pre and Post Test developed

## Result

- Reduced on boarding time by 50%
- Program delivered for 7 Batches

# Competencies Mapping

C1 – Maintain Field Instruments
C2 – Maintain Control System
C3 - Maintain control systems for rotating equipment
C4 - Maintain Alarm & Trip Systems, including Safety Instrumented Systems (SIS)
C5 - Testing & commissioning field instruments, control systems and protection systems for projects
C6 - Manage Contracts and suppo
C7 - Supervise multidiscipline funct
C8 - Competency 8: Comply with H
C9 - Participate in Front-End-Engir
C10 - Plan, Budget and Execute M
C11 - Prepare Standards, Recomm
C12 - Training & Mentoring Subord

| Rating | Proficiency Rating Scale |
|---|---|
| 1 | Not applicable at this stage |
| 2 | No experience and/or knowledge, but needs to acquire skills in this area |
| 3 | Performs defined tasks under direct supervision and guidance |
| 4 | Carries out routine, project-based tasks without supervision |
| 5 | Performs independently varied, problem-based assignments and interprets relevant standards |
| 6 | Conducts and/or supervises complex tasks and integrates various technical inputs to deli current approaches an staff |
| 7 | Acts as a consultant to technology and/or ope effort |

**Can the employee demonstrate the ability to:**

| | | Tech. Instrument |
|---|---|---|
| a) | Calibrate and monitor field instruments used to measure and control various types of process variables (e.g. flow, level, pressure and temperature) | 3 |
| b) | Check & monitor input/output signals & interpret data from field instruments to determine maintenance requirements | 3 |
| c) | Troubleshoot faults and malfunctions in field instruments | 3 |
| d) | Perform preventive, predictive and corrective maintenance of field instruments in line with KOC standards | 3 |

# Case Study #2: NOC & IOC Joint Venture, Incoming Graduates

## Challenge

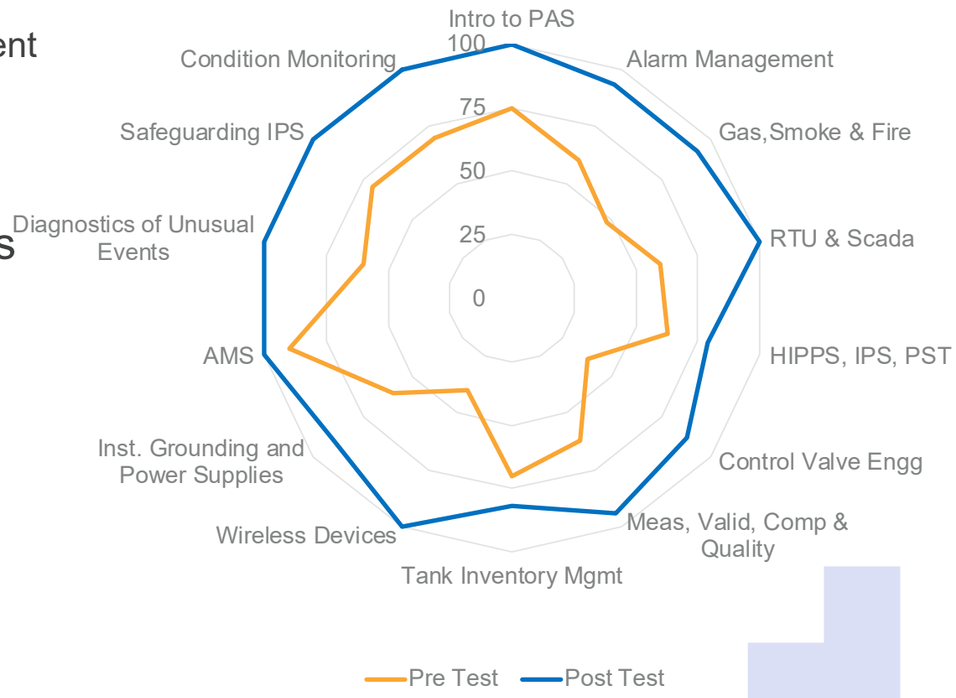
- Localization is one of the key drivers from the company
- “Instrumentation and Process Control Course” for fresh graduate engineers
- Course should cover basic and well as new technologies like IIOT, wireless
- Course should be vendor neutral
- Delivered Locally

## Solution

- A Comprehensive Six Weeks Program was designed
  - Process Automation and Systems
  - Measurement and Tank Management
  - Field Instrumentation
- Hands on practical exercises were developed to give students appreciation for the technology

## Result

- Program as part of Graduate Development Program



# Case Study #3: IOC New Plant Start-up in a Remote Location

## Challenge

- Remote Location
- Language Barriers
- New Plant and local team has not worked on DCS before
- Plant Start up in two years

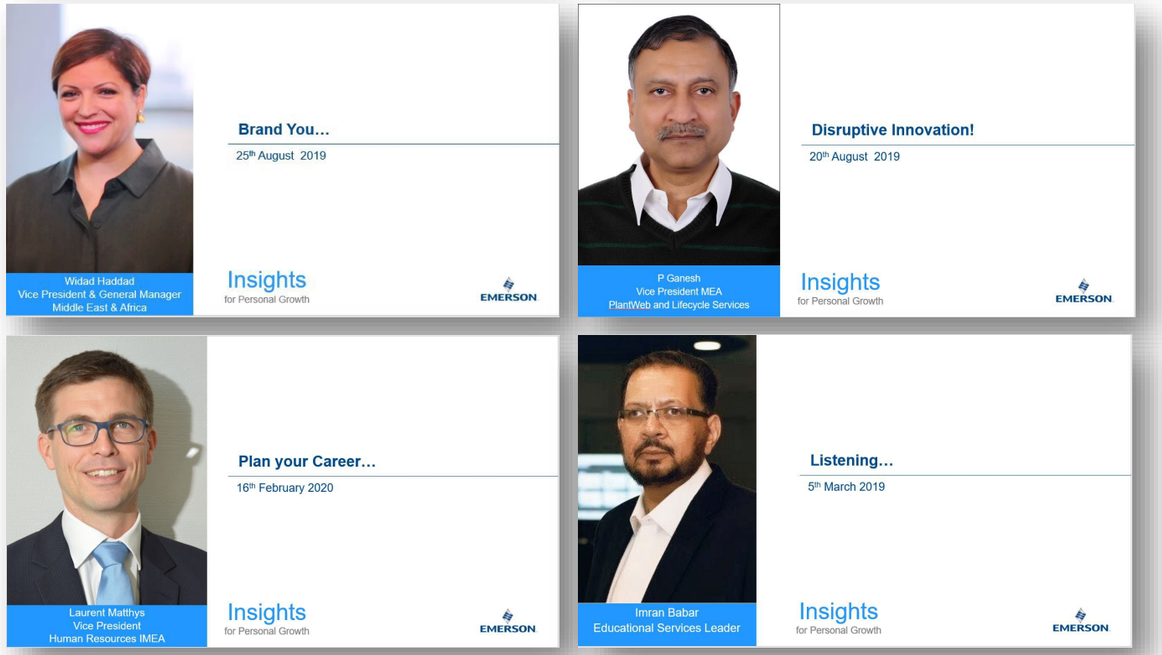
## Solution

- Early engagement with the Operations readiness team and identification of the problem
- Competency Assessments Conducted
- A comprehensive training plan was developed for Maintenance and Operators
- A low fidelity OTS was developed using the plant graphics for training
- All manuals were translated
- All courses were delivered in the presence of bi-lingual instructors

## Result

- Successful startup of the plant by locally trained team
- Roadmap for development for the maintenance staff

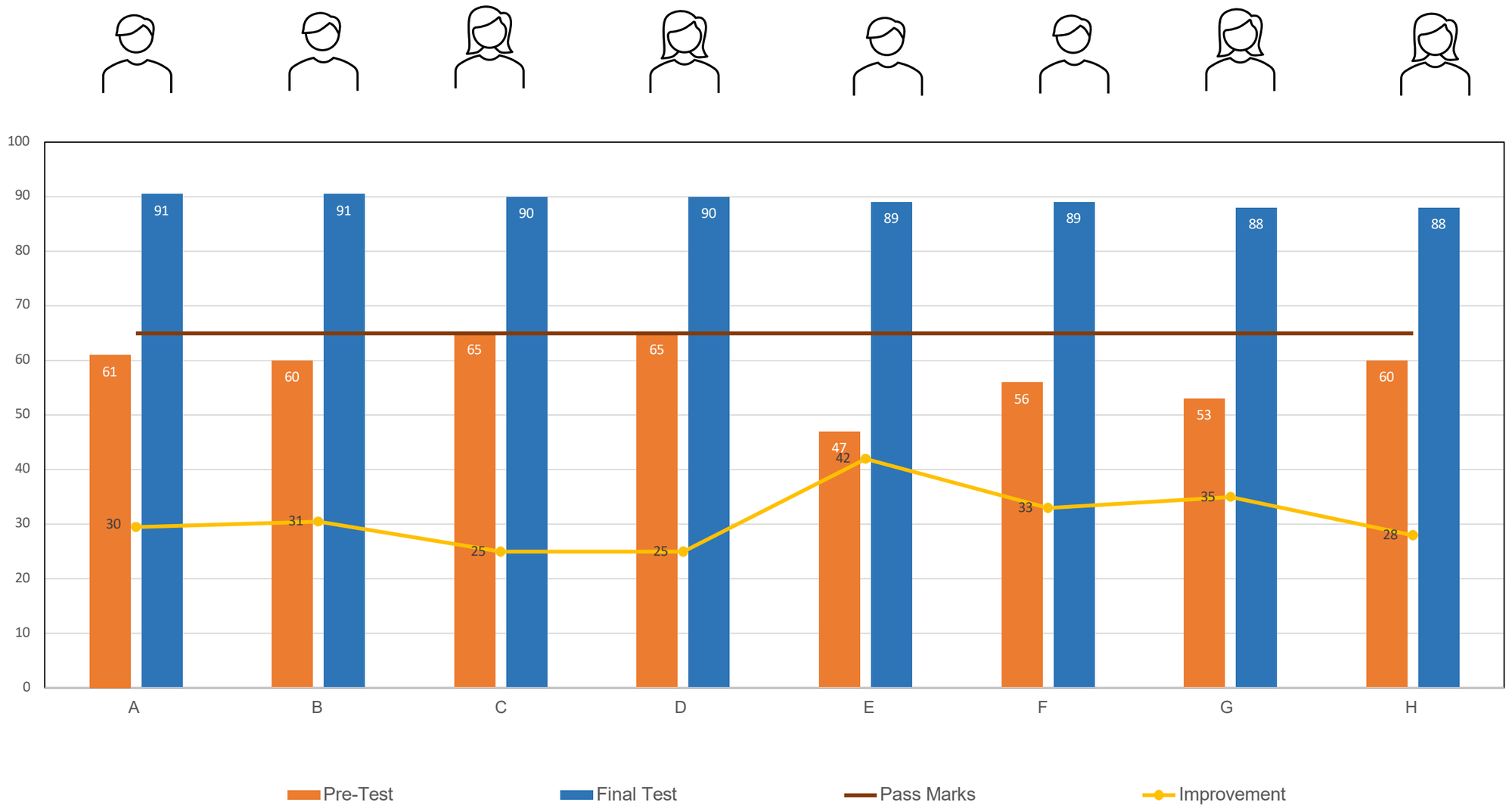
# Engaging the students




**Soft Skills**

**Team Building**

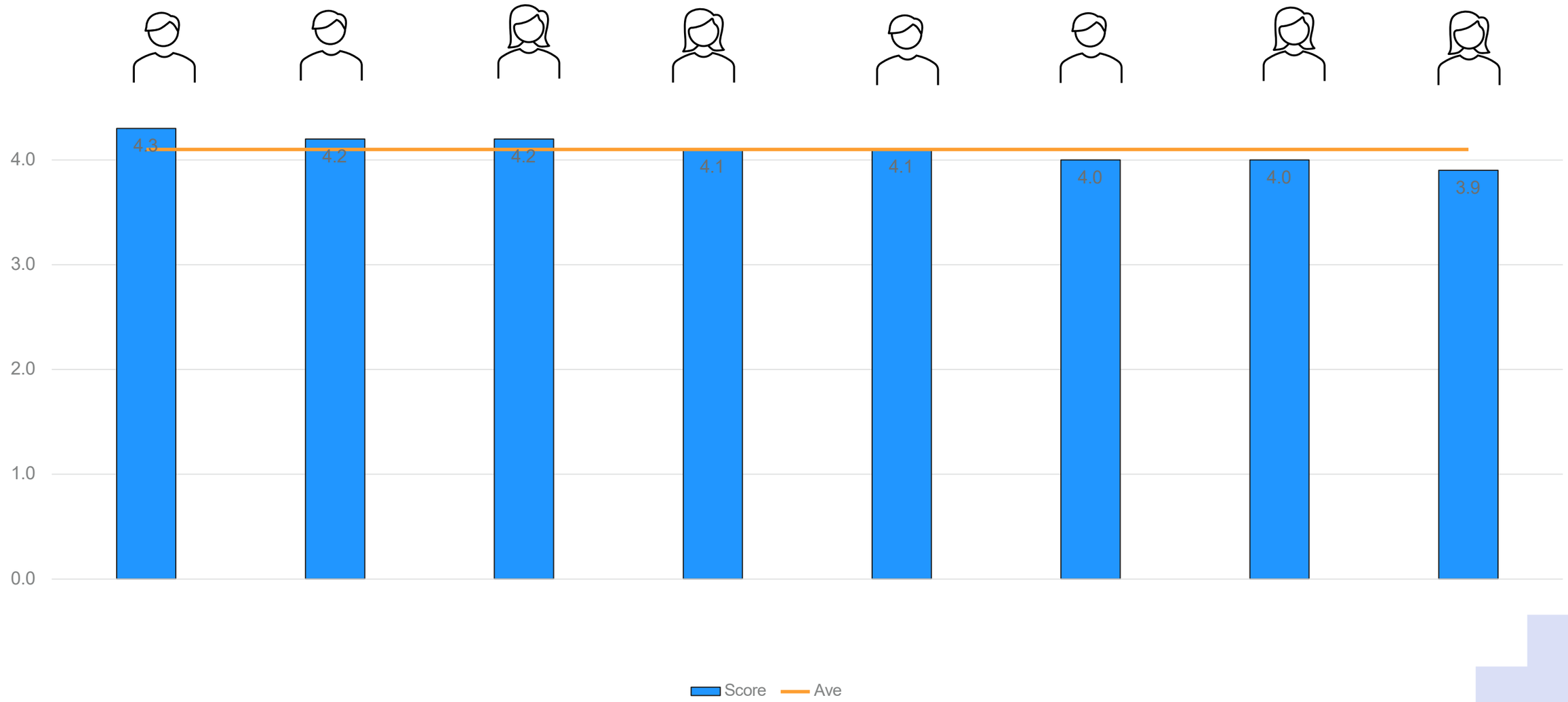
# Pre and Post Course Assessments




Source area if needed

**Overall 31% Improvement in Pre & Post Test Scores**

# Soft Skills

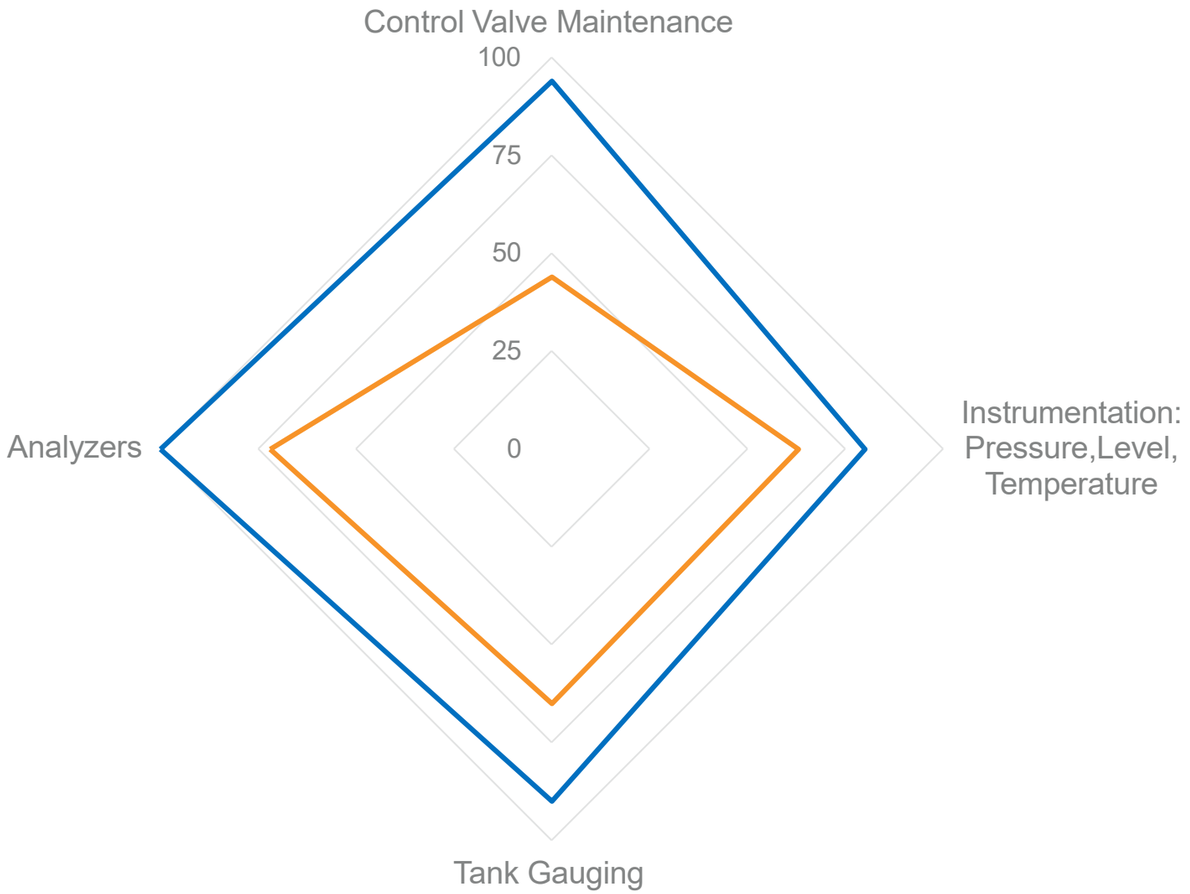


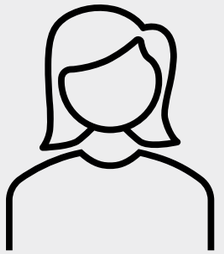

Source area if needed

**Overall= Punctuality X Discipline X Participation X Knowledge**

# Jamila

## Course Scores



### Strength

- Participation
- Basic Subject Fundamentals

### Area of Improvement

- Application Knowledge/Concept
- Communication Skills

### Personal Objectives

- Improve Knowledge about Instrumentation and Analyzers
- How to Maintain Instruments
- Principles of Control Valve

Source area if needed

# Summary

- Competency Development Programs are customized as deliver result faster and better
- Significant Skills improvement on average +40%
- Due to customer design program is 25% shorter
- On boarding time is reduced from 1/4$^{th}$ – ½
- Hybrid Learning saves cost upto 20%
- Programs once designed can be repeated successfully
- Higher level of student satisfaction and trust

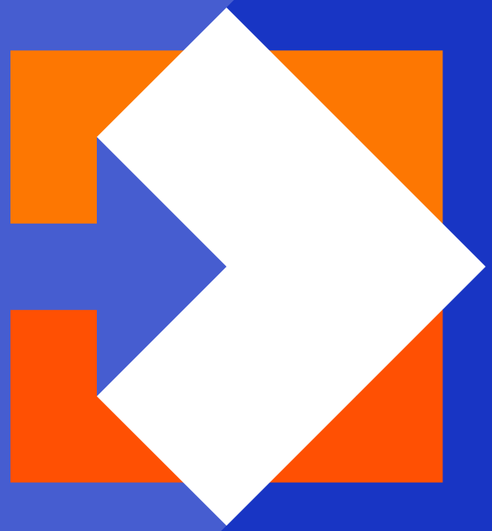
# Where to Find More Information

Kuwait Oil Company Instrumentation & Control Staff attend Emerson's Competency Development Program – YouTube

Virtual Training | Emerson AE

# Presentation Availability

- Presentations will be made available to registered attendees a few weeks after the conference.
- They will be available in emersonexchange365.com.  You must be a member of EE365 to access them.  Join the community now!
- Attendees will receive an email from the conference organizers when presentations are available.



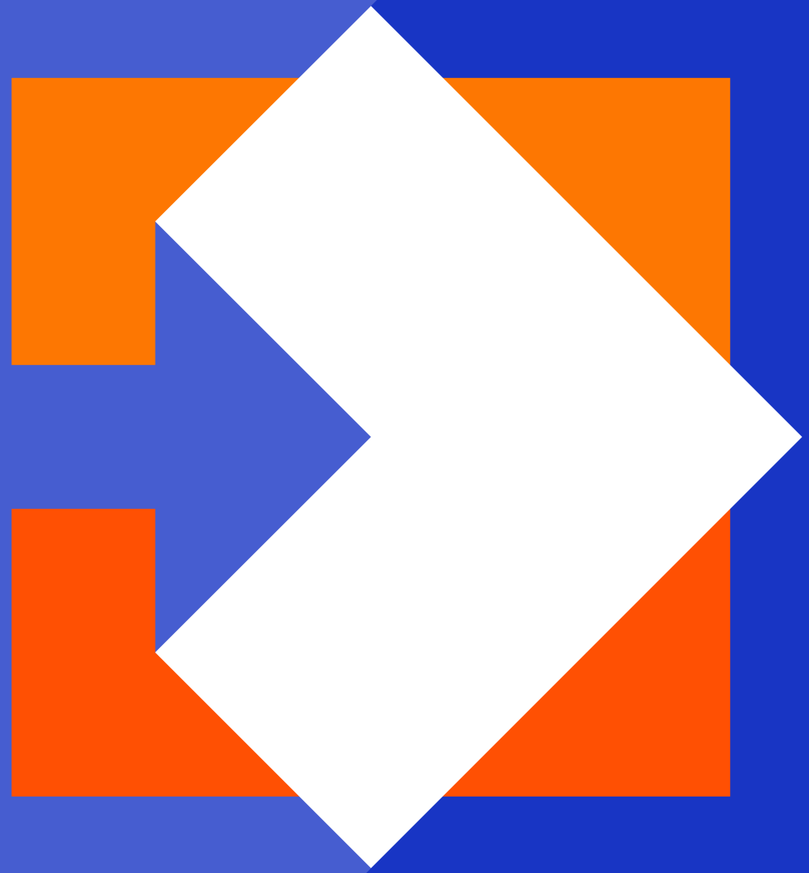
# Thank You!

Remember to score your session in the mobile app.

2022 EMERSON EXCHANGE

# FORWARD FOCUS

October 24-28, 2022
Grapevine, Texas



EMERSON EXCHANGE