MATRIX QUANTUM SDN. BHD. 202201044306 (1490003-X)
Lot 180, Jalan 1A, Kampung Baru Subang,
40150 Shah Alam, Selangor Darul Ehsan.
Tel: 03-58926806 Email: matrixquantum88@gmail.com

TRAINING SCHEDULE & OUTLINE

Course Tittle	**Modern Steam Plan**
Training Provider	**Matrix Quantum Sdn Bhd**
Duration	**2 Days**
Date	**TBA**
Time	**8.30am – 5.00pm**

About the Training:

This program is specifically engineered for Engineers, Boiler Foremen, and Plant Managers. Unlike general courses, this training dives deep into the high-value components of your facility: Steam Headers, Turbines, BPRs, and the Customer Custodian System. Empowering your technical team to achieve precision in steam delivery, this training ensures your system maintains peak stability and parameter integrity before it reaches the customer's boundary."

Training Outcomes:

Upon completion of this training, participants will be equipped to immediately implement best practices of:

1) **Design** steam header configurations that act as a buffer against pressure fluctuations.
2) **Execute** flawless steam turbine startup and shutdown sequences according to OEM standards.
3) **Optimize** the BPR to absorb load swings and ensure consistent exhaust pressure.
4) **Minimize** energy loss and water hammer risks through effective trapping and distribution.
5) **Maintain** precise steam parameters (Pressure & Temp) as required by the end-user or process.
6) **Ensure** steam quality (Dryness/Superheat) for maximum heat transfer at the customer's end.
7) **Apply** preservation techniques to prevent internal corrosion during standby periods.
8) **Develop** emergency response protocols for sudden pressure surges or steam trips.

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	TIME	DESCRIPTION	REMARK
DAY 1	8.30-8.45	REGISTRATION DAY 1	
	8.45-9.00	INTRODUCTION AND ICE BREAKING	
	9.00-10.30	MODULE 1	
	10.30-11.00	TEA BREAK	
	11.00-12.30	MODULE 2	
	12.30-14.00	LUNCH AND ZOHOR PRAYER BREAK	
	14.00-15.30	MODULE 3	
	15.30-15.45	TEA BREAK	
	15.45-17.15	MODULE 4	
	17.15	ADJOURN DAY 1	
DAY 2	8.30-8.45	REGISTRATION DAY 2	
	8.45-9.00	RECAP OF PREVIOUS DAY LESSONS	
	9.00-10.30	MODULE 4	
	10.30-11.00	TEA BREAK	
	11.00-12.30	MODULE 5	
	12.30-14.00	LUNCH AND ZOHOR PRAYER BREAK	
	14.00-15.30	MODULE 5	
	15.30-15.45	TEA BREAK	
	15.45-17.15	MODULE 5	
	17.15	END OF COURSE	

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MODULE OUTLINE DETAILS

1. **MODULE 1 – INTRODUCTION & SCOPE**
   - **A. Modern Steam Cycle**
     1) Understanding the holistic flow from the boiler to the Steam Header, through the Steam Turbine, into the Back Pressure Receiver (BPR), and finally to the Customer Custodian System.

   - B. **Technical Scope Of Critical Assets**
     1) **Steam Header:** Defining its role as the primary pressure stabilizer and distribution "lung" of the plant.
     2) **Steam Turbine:** Scope of high-speed rotating equipment and its dual role in power generation and exhaust heat supply.
     3) **Back Pressure Receiver (BPR):** Defining the BPR as the thermal "buffer" that balances high-pressure supply with low-pressure demand.
     4) **Customer Custodian System:** Scope of the final delivery interface—ensuring steam quality and parameter reliability at the boundary.

2. **MODULE 2 – STEAM HEADER**
   1) **Introduction**
      Exploring the fundamental role of the Steam Header
   2) **Preparation**
      Mastering critical pre-operational protocols, including line warming sequences and effective condensate removal
   3) **Operational**
      Managing real-time steam distribution through active load balancing, pressure drop optimization, and maintaining thermal stability across all branch lines.
   4) **Preservation**
      Implementing advanced standby protocols and corrosion inhibition techniques to protect header integrity during plant shutdowns or seasonal outages.

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3. **MODULE 3 – STEAM TURBINE**
    1) **Introduction**
       Understanding the core principles of the Rankine Cycle and the mechanical conversion of steam energy into reliable industrial power.
    2) **Preparation**
       Executing essential start-up sequences, including lube oil system verification, casing pre-heating protocols, and critical overspeed trip testing.
    3) **Operational**
       Monitoring real-time performance through vibration analysis, efficiency tracking, and the strict control of steam quality to protect internal components.
    4) **Preservation**
       Applying specialized shutdown procedures, such as turning gear operation and nitrogen blanketing, to prevent rotor bowing and internal corrosion.

4. **MODULE 4 – BACK PRESSURE RECEIVER**
    1) **Introduction**
       Defining the BPR's critical role as a thermal buffer and pressure bridge between high-pressure exhaust and low-pressure process requirements.
    2) **Preparation**
       Establishing safe start-up parameters through precise control valve (PRV) set-point calibration and effective air venting procedures.
    3) **Operational**
       Optimizing real-time energy balancing to maximize heat recovery and ensure a steady, surge-free steam supply to downstream processes**.**
    4) **Preservation**
       Conducting routine integrity inspections and safety valve (PSV) management to ensure the vessel remains reliable and compliant during standby

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5. MODULE 5 – STEAM BOILER SHUTDOWN & PROTECTION

1) **Introduction**
   Analyzing the dynamics of the custodian interface and its critical role in ensuring stable steam flow and parameter consistency to the customer.
2) **Preparation**
   Establishing safe boundary line-charging protocols and calibrating high-precision control sensors to ensure accurate delivery data from the start.
3) **Operational**
   Mastering fine-tuned control valve adjustments and PID settings to eliminate pressure surges and maintain uncompromising steam quality at the delivery point.
4) **Preservation**
   Implementing routine instrument verification and valve maintenance schedules to guarantee the long-term reliability and responsiveness of the delivery system.