Tel No:+97126654546 |Fax No:+97126654182|Email: training@cmc-me.com|www.cmc-me.com



MU134:
Mechanical Power Transmission Tools: *Selection, Utilization & Fault Finding*

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Training Description:

In Mechanical Engineering, Power transmission is harnessing the Mechanical Elements and put them at work. WORK is to perform and succeed, producing good results. Power transmission elements can vary from Screws, Wedge, Pulleys, Belts, Cam, Gear, Gear box, Walking beam, Hoppers, Pneumatics and hydraulics, Motors, and more…. Depending on application and design where applied physics governs major concept. People, Design Engineers harness these physics theory and put them all together in order to perform a WORK.

This training course covers the Principles and Applications of the most commonly found Mechanical Drive Components as used in packaging machinery and systems. Topics include simple Mechanical Power Transmission devices such as Shafts, Belts, Chains, Cams and Gears with an emphasis on Selection, Application and Troubleshooting. An understanding of simple mechanical components provides the background necessary to explore more complex systems of components used on all types of packaging equipment.

This course is aimed at Level of Engineers and Highly Qualified Technicians who may be involved in the assembly, Test, Startup, Troubleshooting, Maintenance, Repair or upgrade of basic packaging Machinery Modules. The course will concentrate on how the participants will learn the basic components, how they work, and their function in a Power Transmission Tools. They will be able to understand and interpret Mechanical Schematics, and implement safe work practices. Gain the basic skills needed to be a proactive and effective systems troubleshooter.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand Mechanical Power Transmission Tools
- ✓ Understand the Application of Transmission Tools in Industries
- ✓ Understand the Function, Construction and Operation of the main Tools Components as Standard Procedures
- ✓ Create and match a variety of Mechanical Power Tools to the work to be performed
- ✓ Properly test and inspect Gears, Shaft Coupling, Brakes & Clutches, Belt Drives and Chains
- ✓ Gain knowledge in Investigation, diagnose system versus component Problems, Causes and Root Reasons
- ✓ Distinguish problem “Symptoms” from the Actual “Cause”
- ✓ Apply a common-sense, Systematic Approach Troubleshooting for each Tool Applications

Training Designed for:

This course is intended for Engineers and Technicians who are working in Industries and Factories as a responsible to operate or maintain Mechanical Power Transmission Tools to keep them aware with Latest Technology in those fields and also to improve their Skills.

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

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Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- PRE-TEST
- Introduction
- Module (01): Introduction to Mechanical Drives Safety
  - Function of a Mechanical Power Transmission
  - Five Methods of Rotary Mechanical Transmission
  - Rules of Safe Dress for Working with Equipment
  - Operation of a foundation and Types
  - Applications for Transmission Tools
  - Types of Motor mounts and Applications
- Module (02): Power Transmission and Shafts
  - Function of Machine Shaft and Applications
  - Shaft Materials and Specific Applications
  - Types of Bearing Loads
  - Function of Coupling and Types
  - Shaft Alignment and Balancing
  - Straight Edge and Feeler Gage Method
  - Power Transmission Performance

DAY TWO:

- Module (03): Shaft Coupling
  - Definition
  - Misalignment & Balancing
  - Types of Coupling
  - Torsional Characteristics (Rigidity & Flexibility)
  - Solid Coupling
  - Coupling Selection
  - Constant Velocity Joints
- Module (04): Gear Drives
  - Pitch Circle and Pitch Diameter
  - Calculation of the Gear Ratio
  - Shaft Speed and Torque of a Gear Drive
  - Types of Gears and its Applications
  - Installation and Align a multiple Shaft Drive System
  - Allowable Backlash in a Gear Drive
  - Speed and Torque Output in Shaft Gear Drive

DAY THREE:

- Module (05): Belt Drives
  - Flat Belts

- V Belts
- Belt Tension Adjustment
- Speed Change
- Timing Belts
- Characteristics of Belt Drives
- Use of Belt-Tensioning Pulleys

❖ Module (06): Universal Joint

- Equation of Motion
- Double Cardan Shaft
- Double Cardan Joint
- Rotary Motion
- U-Joint
- Cardan Joint
- Hardy-Spicer Joint
- Thompson Coupling

DAY FOUR:

❖ Module (07): Chain Drives

- Basic Components of a Chain Drive
- Shaft Speed and Torque of Chain Drive
- Install and Align a Multiple Strand Chain
- Chain Pitch, Pitch Circle and Diameter
- Lubrication System for a Chain Drive
- Operation of Chain Breaker
- Troubleshooting of Chain Drive System

❖ Module (08): Brakes and Clutches

- Definitions
- Principles of Brakes and Clutches
- Types of Brakes
- Types of Clutches
- Effects of Overheating
- Brake Actuating Systems

DAY FIVE:

❖ Module (09): Lubrications System Applications

- Definitions
- Principles of Brakes and Clutches
- Types of Brakes
- Types of Clutches
- Effects of Overheating
- Brake Actuating Systems

❖ Module (10): Maintenance & Troubleshooting

- Failure Modes for Each Tool
- Common Failure Mode
- Maintenance Strategy

- Condition Monitoring System
- Troubleshooting Guides
- Inspection & Repair

❖ Course Conclusion
❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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