



LEARN AND WORK ASSIGNMENT (LWA)



NOSS (CODE NOSS)	INDUSTRIAL MAINTENANCE OPERATION (MC-010-3:2012)		
Competency Unit Title (CU CODE)	MATERIAL HANDLING EQUIPMENTS MAINTENANCE (CONVEYOR) MC-010-3:2012-C07	LEVEL	3
Competency Unit Descriptor	<p>Material handling equipments maintenance (Conveyor) is the actions necessary for retaining material handling equipment or restoring to it serviceable condition which include servicing, repairing, modification, overhauling, inspection and condition verification to keep equipment in working order.</p> <p>The person who is competent in this CU shall be able to Select material handling (Conveyor) equipments to be maintained, Select maintenance requirement, Perform material handling (Conveyor) maintenance, Perform material handling equipments functionality test and Produce material handling equipments report.</p> <p>The outcome of this competency is to provide excellence material handling (Conveyor) maintenance according to Machine manual as per company's policy, rules and regulation.</p>		
Candidate Name			
Candidate I/C Number			
Company's Name			

CU WORK ACTIVITY STATEMENT:**PERFORM MATERIAL HANDLING MAINTENANCE (CONVEYOR) ACTIVITIES****DURATION: 218 HOURS****A. SETTING GOAL**

You are required to perform material handling maintenance (conveyor) activities based on performance criteria below:

- 1.1 Determine type of material handling (Conveyor) equipments accordance to the maintenance schedule
 - 1.1.1 Chain conveyor
 - 1.1.2 Roller conveyor
 - 1.1.3 Belt conveyor
- 1.2 Identify job order in accordance with company's policy, material handling rules and regulation compliance.
- 1.3 Identify type of maintenance
 - 1.3.1 Preventive
 - 1.3.2 Corrective
 - 1.3.3 Predictive
- 1.4 Describe maintenance schedule
- 1.5 Explain maintenance requirement
- 1.6 Describe technical drawing
 - 1.6.1 Drawing symbol
 - 1.6.2 Critical dimension
 - 1.6.3 Material handling component
- 1.7 List maintenance tool and sparepart
- 1.8 Select material handling equipment problem troubleshoot
- 1.9 Determine material handling maintenance components accordance with recommend level.
 - 1.9.1 Controller
 - 1.9.2 Alarm
 - 1.9.3 Visually check motor

- 1.9.4 Sensor
- 1.9.5 Bearing
- 1.9.6 Roller
- 1.9.7 Chain / pulley / roller / sprocket
- 1.9.8 Conveyor belt
- 1.10 Identify material handling component replace or repair
- 1.11 Identify safety procedures adhered in accordance to standard operation procedures.
- 1.12 Identify material handling equipments activity
- 1.13 Identify material handling equipment's functionality
- 1.14 Identify material handling report format
- 1.15 Identify submission documentation to person in charge

B. PLANNING

You are required to plan activities in performing material handling maintenance (conveyor) to achieve setting goal by using resources listed below:

2.1 Identify tools, equipment & materials.

ITEMS	RATIO (TEM : Trainees)
1. Measuring instruments	1:1
2. Measuring Instrument storage (cabinet)	1:25
3. Measuring Instrument charts and posters	1:25
4. Technical drawing	1:5
5. Conveyor Training Kit	1:25
6. Check sheet	1:1
7. Tool box	1:1
8. Hand tool set	1:1
9. Power tools	1:5
10. Personal Protective Equipment (PPE)	1:1
11. Workpiece	1:1
12. Management Information System (MIS)	1:10

2.2 Perform material handling maintenance (conveyor) workflow.

2.3 Identify material handling maintenance (conveyor) procedures, flow chart and correct sequence.

2.4 Plan duration/time of material handling maintenance (conveyor) procedures.

2.5 Identify manpower in performing material handling maintenance (conveyor) activities.

2.6 You may review references as guidelines in performing this activity.

REFERENCES

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C. DECISION MAKING

- 3.1 You are required to get coach approval before performing material handling maintenance (conveyor) activities.

D. EXECUTING & MONITORING

You are required to perform material handling maintenance (conveyor)
Activities according to the steps below:

- 3.1 Adhere to Safety procedures and Standard Operation Procedures.
- 3.2 Select material handling (conveyor) equipment to be maintained
- 3.2.1 Interpret contents of automation system maintenance schedule
- Format of maintenance schedule table (daily, weekly, monthly, quarterly, yearly)
 - Type of maintenance (corrective, preventive and predictive)
 - Type of machines
 - Time interval
 - Duration
 - Verification (prepare, check and approve)
 - Location
 - Etc.
- 3.2.2 Identify types and functions of conveyors
- Chain conveyor
 - Roller conveyor
 - Belt conveyor
 - Etc.
- 3.2.3 Interpret job order instructions/ Maintenance checklist
- List of jobs
 - Person in charge
 - Type of job order
 - Type of maintenance list
 - Status of work
 - Department
 - Date and time start
 - Date and time completed
 - Etc.
- 3.2.4 Comply to material handling safety rules and regulation.
- Occupational safety & health act (osha)
 - Manual operation
 - Manual installation
 - Standard operating procedure (sop)
 - Etc.

- 3.3 Select maintenance requirement
 - 3.3.1 Identify types of maintenance
 - Preventive
 - Corrective
 - Predictive
 - 3.3.2 Identify required spare parts for maintenance
 - Chain Conveyor
 - Roller Conveyor
 - Belt Conveyor
 - Etc.
 - 3.3.3 Confirm maintenance requirement
 - Hand tool
 - Power tool
 - Special tool
 - Etc.
- 3.4 Perform material handling (conveyor) maintenance
 - 3.4.1 Comply safety procedures in accordance to Standard Operation Procedures
 - Occupational Safety & Health Act (OSHA)
 - Standard Operating Procedure (SOP)
 - Etc.
 - 3.4.2 Interpret material handling instruction manual
 - Installation Manual
 - Operation Manual
 - 3.4.3 Interpret technical Drawing (Flow drawing)
 - Symbols
 - Schematic diagram
 - Dimensions
 - Projection view
 - Assembly drawing
 - Etc.
 - 3.4.4 Identify types of maintenance Tools
 - Hand tools
 - Power tools
 - Special tools
 - Etc.
 - 3.4.5 Select types of spare parts and components
 - Controller
 - Alarm
 - Induction motor
 - Sensor
 - Bearing
 - Roller
 - Chain / pulley / belting /roller sprocket
 - Conveyor belt

- Etc.
- 3.4.6 Check problem and causes of material handling
 - Interlock system faulty
 - Motor faulty
 - Misalignment
 - Conveyor belt jerking
 - Etc.
- 3.4.7 Perform components dismantling • Repair • Replace
- 3.4.8 Perform components assembly
- 3.4.9 Perform components adjustment
- 3.4.10 Confirm component assembly
- 3.4.11 Fill-up Maintenance checklist
 - Work checklist
 - Test checklist
 - Etc.
- 3.5 Perform material handling equipment functionality test
 - 3.5.1 Conveyor safety features according to Standard Operation Procedure (SOP) complied
 - Occupation Safety and Health Act (OSHA)
 - Manual Operation
 - Installation procedure
 - Etc.
 - 3.5.2 Test run method and procedures of the conveyor under condition without load and with load performed
 - Visual
 - Vibration
 - Noise
 - Heat
 - Etc.
 - 3.5.3 Functionality of conveyor confirmed
 - Stability
 - Vibration
 - Alignment
 - Tensional
 - Rotation direction
 - Etc.
- 3.6 Produce material handling equipments report
 - 3.6.1 Types of Material handling maintenance selected data
 - Technical data
 - Material handling component data
 - Etc.
 - 3.6.2 Types of Checklist selected

- Work checklist
- Test checklist
- Etc.

3.6.3 Types of report selected

- Manual
- Computerize
- Etc.

3.6.4 Maintenance report and data compiled

4.27 Comply with attitude, safety and environment listed below when performing this activity.

ATTITUDE	SAFETY	ENVIRONMENTAL
i. Meticulous in selecting machine	i. Adhere to safety requirement	i. Comply to environment act
ii. Alertness in selecting equipment	ii. Adhere to safety requirement	
iii. Responsible at workplace	iii. Use Personal Protective Equipment	
iv. Cleanliness at workplace		
v. Meticulous in maintenance works		
vi. Responsible		
vii. Cleanliness		
viii. Adhere to safety requirement		
ix. Use Personal Protective Equipment		
x. 5S compliance		

4.27 Apply core activities listed below when performing this activity.

Social Skills	Core Abilities
Communication skills	L1-CA01-01 Apply working language appropriately (English/ national language etc). L1-CA01-02 Apply oral communication and speak reasonably. L1-CA01-03 Understand reading material. L2-CA01-01 Apply two-way communication L2-CA01-02 Disseminate information electronically L2-CA01-03 Disseminate information manually L3-CA01-01 Demonstrate communication practice
Problem solving skills	L1-CA02-01 Demonstrate honesty and integrity L1-CA02-02 Adopt work punctuality L1-CA02-03 Demonstrate team cooperation L2-CA02-01 Demonstrate responsibility at workplace L2-CA02-02 Apply teamwork cooperation concept L2-CA02-03 Initiate problem solving at workplace L2-CA02-04 Demonstrate work performance awareness
Leadership skill	L3-CA02-01 Demonstrate counselling ability L3-CA02-02 Demonstrate responsibility & authority L3-CA02-03 Demonstrate teamwork ability L3-CA02-04 Demonstrate emotional intelligence L3-CA02-05 Apply work knowledge in identifying clients needs L3-CA02-06 Monitor work performance delivery L2-CA01-04 Apply information confidentiality L3-CA01-02 Apply basic negotiation skills L3-CA06-03 Implement workforce practices L3-CA03-01 Apply cultural requirement at workplace L3-CA03-02 Handle situations that require attention
Teamwork	L1-CA03-01 Respond to instructions L1-CA03-02 Demonstrate discipline at workplace L2-CA03-01 Apply practice work culture L2-CA03-02 Respond appropriately to unusual situations

	L2-CA03-03 Demonstrate initiative and flexibility L2-CA04-01 Demonstrate health compliance L2-CA04-02 Demonstrate safety compliance L2-CA04-03 Demonstrate environment compliance L3-CA04-01 Execute health consciousness L3-CA04-02 Execute safety consciousness L3-CA04-03 Execute environment compliance
Multitasking and prioritizing	L1-CA04-01 Adhere to health awareness activity L1-CA04-02 Adhere to safety awareness activity L1-CA04-03 Adhere to environmental awareness activity L3-CA05-01 Demonstrate Technology update awareness L3-CA05-02 Demonstrate Information technology regulatory Awareness L3-CA06-01 Demonstrate work asset usage awareness L3-CA06-02 Negotiate acceptance and delivery of products and/or services

E. EVALUATING

You are required to evaluate material handling maintenance (conveyor) activities using the checklist below.

A	ASSESSMENT CRITERIA (60%)	MARKS GIVEN BY APPRENTICE					MARKS GIVEN BY COACH				
		0	1-2	3-4	5-6	7	0	1-2	3-4	5-6	7
1	Types of material handling equipment's determined										
2	Job order instructions/ Maintenance checklist interpreted										
3	Types of maintenance selected										
4	Spare parts for maintenance selected										
5	Material handling instruction manual interpreted										
6	Technical Drawing interpreted										
7	Types of maintenance Tools selected										
8	Problem and causes of material handling checked										
9	Components dismantling performed										
10	Material handling repaired, replaced and troubleshoot performed										
11	Components assembly performed										
12	Test run method and procedures of the conveyor performed										
13	Material handling maintenance data recorded										
	SUBTOTAL	A₁					A₂				
	FULL MARKS	91					91				

B	ATTITUDE/SAFETY/ ENVIRONMENT (20%)	MARKS GIVEN BY APPRENTICE					MARKS GIVEN BY COACH				
		0	1-2	3-4	5-6	7	0	1-2	3-4	5-6	7
1	Attitude										
2.	Safety										
3	Environmental										
		B₁					B₂				
		21					21				
C	EMPLOYABILITY SKILLS (SOCIAL SKILLS) (20%)	MARKS GIVEN BY APPRENTICE					MARKS GIVEN BY COACH				
		0	1-2	3-4	5-6	7	0	1-2	3-4	5-6	7
1	Communication skills										
2	Problem solving skills										
3	Leadership skill										
4	Teamwork										
5	Multitasking and prioritizing										
		C₁					C₂				
	FULL MARKS	35					35				

CALCULATION TABLE

	MARKS GIVEN BY APPRENTICE	MARKS GIVEN BY COACH	WEIGHTED MARKS GIVEN BY APPRENTICE	WEIGHTED MARKS GIVEN BY COACH
ASSESSMENT CRITERIA	A_1	A_2	$A_1 / 91 \times 60$	$A_2 / 91 \times 60$
ATTITUDE, SAFETY & ENVIRONMENT	B_1	B_2	$B_1 / 21 \times 20$	$B_2 / 21 \times 20$
EMPLOYABILITY SKILLS (SOCIAL SKILLS)	C_1	C_2	$C_1 / 35 \times 20$	$C_2 / 35 \times 20$
Total			X	Y
Ratio of Percentage (Apprentice: Coach)			P%	Q%
Grand Total			$(P/100 \times X) + (Q/100 \times Y)$	

COMMENTS/ RECOMMENDATIONS BY COACH

COACH:
DATE:

APPRENTICE:
DATE: