



Co-funded by the European Union



Norwegian Embassy
Islamabad



© TVET SSP

POST PRESS OPERATIONS (Packaging)

Trainer Guide

National Vocational Certificate Level 3

Version 1 - December 2019



Implemented by

giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH

Published by

National Vocational and Technical Training Commission
Government of Pakistan

Headquarter

Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan
www.navttc.org

Responsible

Director General Skills Standard and Curricula, National Vocational and Technical Training Commission
National Deputy Head, TVET Sector Support Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Layout & design

SAP Communications

Photo Credits

TVET Sector Support Programme

URL links

Responsibility for the content of external websites linked in this publication always lies with their respective publishers. TVET Sector Support Programme expressly dissociates itself from such content.

This document has been produced with the technical assistance of the TVET Sector Support Programme, which is funded by the European Union, the Federal Republic of Germany and the Royal Norwegian Embassy and has been commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close collaboration with the National Vocational and Technical Training Commission (NAVTTTC) as well as provincial Technical Education and Vocational Training Authorities (TEVTAs), Punjab Vocational Training Council (PVTC), Qualification Awarding Bodies (QABs)s and private sector organizations.

Document Version

December, 2019
Islamabad, Pakistan

POST PRESS OPERATIONS (Packaging)

Trainer Guide

National Vocational
Certificate Level 3

Version 1 - December 2019

Contents

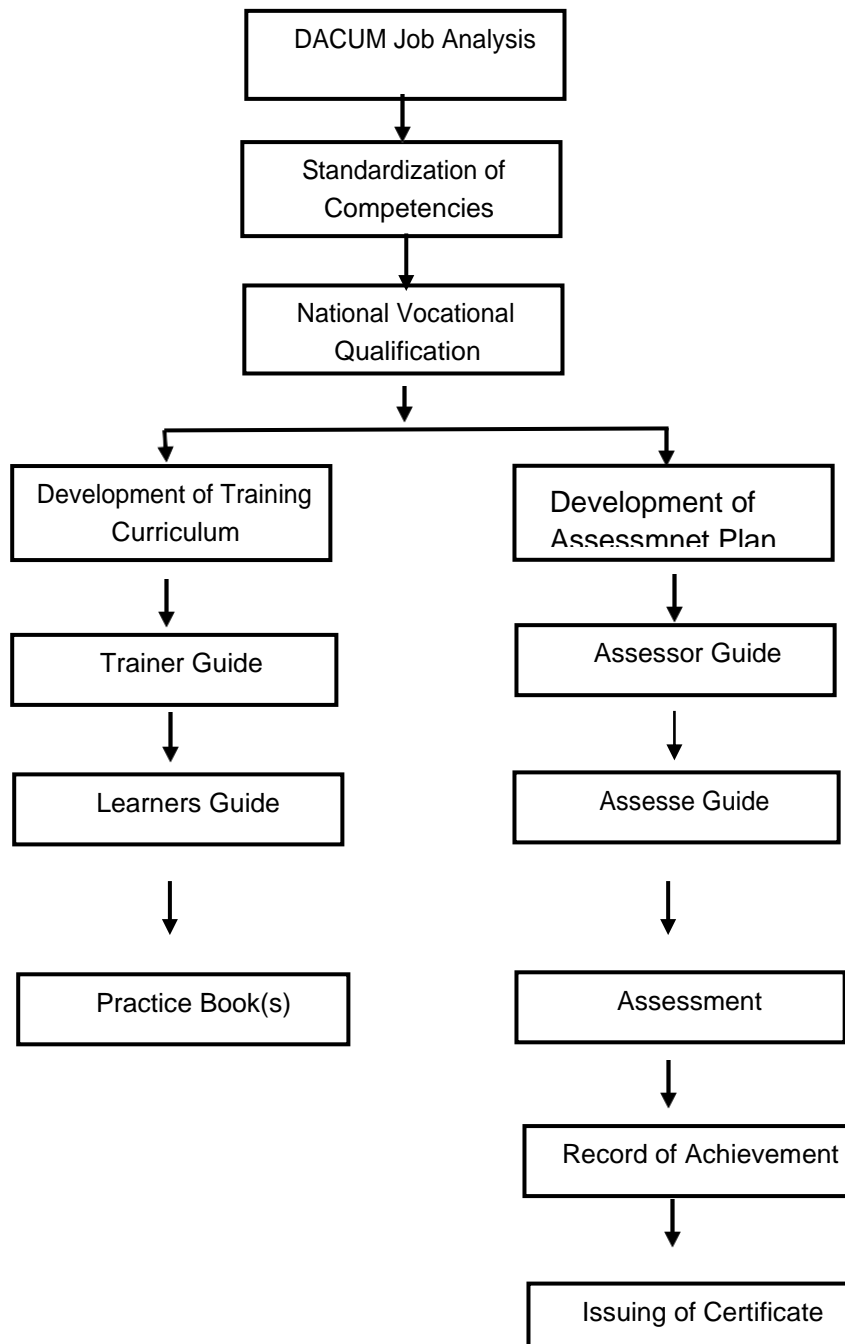
Contents	2
INTRODUCTION	3
Curriculum	5
EVALUATION OF TRAINING MATERIAL.....	6
LESSON PLANS.....	7
GUIDELINES FOR WRITING LESSON PLAN.....	15
DEMONSTRATION OF SKILL.....	17
OVERVIEW OF PROGRAMME.....	18
Module-1: Perform Die Cutting operation.....	19
Module-2: Perform Waste Management	31
Module-3: Perform Embossing	42
Module-4: Develop professionalism.....	51
IMPLEMENTATION OF CBT PROGRAM.....	64
GENERAL INSTRUCTIONS FOR TRAINER/INSTRUCTOR	65

INTRODUCTION

This Guide supports the Competency-Based Training Curricula that will enable the trainees to achieve the competency standards that have been set by the relevant industry group.

The NVQF Competency-Based Training Curricula along with the associated Training Guides and the Assessment Guides are all developed from the skill competency standards established by Qualification Development Committee (QDC).

Below figure outlines the process of developing the competencies, curriculum, assessment requirements, delivering the training program and the assessments guide to certify achievement of the competencies.



The Trainer Guide provides guidelines and instructions to Trainers on the approaches that are required and on the organization and delivery of the curriculum training program.

Curriculum

The Curriculum Manual is included in the Training and Learning Materials Package.

The curriculum is organized as a series of modules. Each module is broken down into a series of Learning Units. Each Learning Unit includes Learning Outcomes, Learning Elements, an estimate of the time needed, a list of materials required and the location for the learning to take place.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials needed	Location

Lesson Plans

The Trainer will need to develop a coherent set of lesson plans for each module of the curriculum. This Guide includes a Lesson Plan Template. The Lesson Plans must be filed for later review if necessary.

Assessment

It is necessary to assess the knowledge and skills of the trainees at the completion of each module.

(See the Assessment Guide for further details)

Evaluation of Training Material

Trainers are invited to evaluate the Training Materials based on their experience of delivering the training. A template is provided to assist.

EVALUATION OF TRAINING MATERIAL

The trainers/instructors who implement this training material can inform NAVTTC promptly of any shortcomings in training material on the following format. Please consider it as one of your responsibilities.

Format

Trade:			
Training Material	Module Title & Module Code	Learning Unit Title & Learning Unit Code	Suggested amendments/ feedback/proposal
Trainer Guide			
Learner Guide			
Practice Book			
Trainer Name:		Training Centre:	
Signature of Trainer:		Date:	

LESSON PLANS

Dear Instructors/Trainers,

Model Lesson Plans for one module have been provided in this trainer's guide. A format and guidelines for writing Lesson Plans have also been provided in the succeeding pages. You are advised to prepare your own lesson plans for the remaining Learning Units using the suggested format and guidelines.

Lesson Plan - 1			
Module: 1	Perform Die Cutting operation		
Learning Unit: 1	Perform Substrate Handling		
Learning Outcome	<ul style="list-style-type: none"> • Verify side-lay & front-lay of the printed substrate • Verify the GSM of the substrate as per docket. • Verify thickness of substrate as per docket. • Verify substrate size as per docket. • Verify the grain of substrate as per docket. • Perform Substrate Stacking as per instruction. 		
At the end of the session the learners will be able to:			
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> • Define side lay and front lay. • Define Importance of the substrate 	Multimedia/ White board	30 min
Main Body			
Lecture	Brief learners about methods of cleaning of press room	Learner Guide/ Projector/ White board	240 min
-do-	Define side lay and front lay.		
Group discussion	Define Importance of the substrate stacking. Define how to measure thickness of substrate. Define how to measure substrate size. Define how to check grain direction of a substrate.		
Field visit	Conduct a visit to press workshop		60 min
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		30 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			06 hours

Lesson Plan - 2			
Module: 1	Perform Die Cutting operation		
Learning Unit: 2	Verify Die as per docket		
Learning Outcome	<ul style="list-style-type: none"> Verify the die ups as per docket Verify creasing matrix requirement as per thickness of the substrate. 		
At the end of the session the learners will be able to:			
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> Define creasing matrix 	Multimedia/ White board	30 min
Main Body			
Lecture	Brief learners about methods of cleaning of press room	Learner Guide/ Projector/ White board	180 min
-do-	Define creasing matrix. How to decide which creasing matrix to use.		
Group discussion			
Field visit	Conduct a visit to press workshop		180 min
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		90 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			08 hours

Lesson Plan - 3

Module: 1	Perform Die Cutting operation		
Learning Unit: 3	Make ready workstation for die cutting operation		
Learning Outcome At the end of the session the learners will be able to:	<ul style="list-style-type: none"> • Perform nicking on cutting blade as per instruction • Set the die rubber on to the die • Mount the die on to the machine chase. • Mount machine chase on die cutting machine • Set the creasing matrix on the creasing rule. • Make impression setting of die with the help of cutting paper/Carbon paper • Perform Substrate Stacking in to the feeder • Adjust the head-lay & the side-lay • Adjust the impression as per job requirement • Adjust the feeder according to the job • Perform test run 		
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> • Describe elements of make ready for a new die cutting job • Describe the purpose of fanning. • Describe the importance of creasing, rule thickness and height 	Multimedia/ White board	120 min
Main Body			
Lecture	Brief learners about methods of cleaning of press room	Learner Guide/ Projector/ White board	450 min
-do-	Describe elements of make ready for a new die cutting job.		
Group discussion	Describe the purpose of fanning. Describe the importance of creasing, rule thickness and height.		

Field visit	Conduct a visit to press workshop		450 min
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		180 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			20 hours

Lesson Plan - 4			
Module: 1	Perform Die Cutting operation		
Learning Unit: 4	Perform die cutting operation		
Learning Outcome	<ul style="list-style-type: none"> • Get approval from the supervisor • Carry out cutting operation as per instruction • Check & maintain the quality of die cutting 		
At the end of the session the learners will be able to:			
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> • Describe die cutting operation 	Multimedia/ White board	60 min
Main Body			
Lecture	Brief learners about methods of cleaning of press room	Learner Guide/ Projector/ White board	240 min
-do- Group discussion	Describe die cutting operation. Verify various aspects of quality during the operation. <ol style="list-style-type: none"> 1. Proper cutting 2. Proper creasing 3. Proper Perforation 		
Field visit	Conduct a visit to press workshop		180 min
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		120 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			10 hours

Lesson Plan - 5

Module: 1	Perform Die Cutting operation		
Learning Unit: 5	Perform post production activity		
Learning Outcome	<ul style="list-style-type: none"> • Remove the die and cutting plate from the machine as per instruction • Clean the cutting plate as per instruction • Remove the pile form feeder and delivery. • Clean the machine & workplace 		
At the end of the session the learners will be able to:			
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> • Describe the importance of maintaining/cleaning work station. 	Multimedia/ White board	15 min
Main Body			
Lecture	Brief learners about methods of cleaning of press room	Learner Guide/ Projector/ White board	75 min
-do-	Describe the importance of maintaining/cleaning of work station.		
Group discussion			
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		30 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			02 hours

Lesson Plan - 6

Module: 1	Perform Die Cutting operation		
Learning Unit: 6	Maintain log Book		
Learning Outcome	<ul style="list-style-type: none"> • Record the final counter along-with the wastages • Record downtime during die cutting operation 		
At the end of the session the learners will be able to:			
Methods	Key Notes	Media	Time
Introduction			
Lecture	Introduce the Learning Unit. Motivate the learners to create interest. Tell them about the following learning objectives: <ul style="list-style-type: none"> • Importance of record keeping 	Multimedia/ White board	15 min
Main Body			
Lecture -do-	Brief learners about methods of cleaning of press room Importance of record keeping.	Learner Guide/ Projector/ White board	75 min
Conclusion			
Lecture	Summarize the lesson by reviewing important facts.		30 min
Question and Answers	Ask questions to ensure that the learners acquired relevant knowledge.		
Total time:			02 hours

GUIDELINES FOR WRITING LESSON PLAN

The template for lesson plan has been provided at next page. These guidelines are for trainers, to write their own lesson plans as follows:

1. Introduce yourself and the Learning Unit, and state the Learning Outcomes of the session clearly to activate attention of learners.
2. In **Introduction** part of lesson plan; state the Learning Objectives of the lesson. This allows the learners to organize their thoughts on what they will learn and to perform. Also state some questions to recall prior knowledge of learners to arouse their interest and motivation.
3. In **Body** part of lesson plan present the new information or material that is to be learned. Demonstration of a skill relevant with the Learning Unit is also stated here. Also mention the teaching and learning methods for each learning element from *Trainer Guidelines*, the relevant media e.g. handouts, practice book, power-point slides, videos, white board and time duration for each activity in the relevant columns.
4. In **Conclusion** part list the strategies used for summarizing and reviewing the lesson delivered. Also mention the strategies for formative assessment to ensure that the transfer of knowledge and skill has been achieved.

FORMAT FOR LESSON PLAN

Module			
Learning Unit			
Learning Outcomes			
<input type="checkbox"/> <input type="checkbox"/>			
Methods	Key Notes	Media	Time
Introduction			
Main Body			
Conclusion			
			Total time:

DEMONSTRATION OF SKILL

Demonstration or modelling a skill is a powerful tool which is used in vocational training. For any practical demonstration, it is important for a Trainer to follow the given instructions:

1. Trainer must be competent enough and practice the skill before demonstration to learners, if possible.
2. Arrange all tools, equipment and consumable material which are required for demonstration of a skill
3. Introduce the competence to learners clearly at the commencement of demonstration.
4. Explain how the skill relates with the skill(s) already acquired and describe the expected results or show the objects to learners.
5. Ensure that all the learners are attentive at the time of practical demonstration.
6. Carry out demonstration in a way that it can be seen by all learners.
7. Perform each step slowly and speak out loudly so that all learners can hear and understand.
8. During the demonstration, guide the learners individually, whenever needed.
9. Mention critical/complex steps and ensure safety precautions
10. Explain theoretical knowledge where applicable and ask questions to learners to check their learning skills.
11. Repeat critical steps in demonstration, if required.
12. Summarize the demonstration and discuss the result of demonstration.

OVERVIEW OF PROGRAMME

Course: Post Press Operator

Total Duration: 500 hours

Course Overview:

The purpose of this training program is to develop skills of those learners who want to pursue their careers in Post Press – Packaging industry. After successfully achieving the qualification the Post press operator can work in Post press packaging sector.

Module	Learning Units	Theory hours	Workplace hours
1- Perform Die cutting operation	LU-1 Perform Substrate handling LU-2 Verify Die as per docket LU-3 Make ready workstation for die cutting operation LU-4 Perform die cutting operation LU-5 Perform post production activity LU-6 Maintain log Book	48 Hrs.	252 Hrs.
2- Perform Waste Management	LU-1 Manage Post press waste LU-2 Handle toxic chemicals LU-3 Handle non-toxic chemicals LU-4 Manage solid waste	10 Hrs.	20 Hrs.
3- Perform Embossing	LU-1 Perform Substrate handling LU-2 Make ready workstation for Embossing LU-3 Perform Embossing operation LU-4 Perform post production activity LU-5 Maintain log Book	28 Hrs.	112 Hrs.
4- Develop professionalism	LU-1 Participate in in-house training LU-2 Participate in outdoor training LU-3 Attend trade shows workshop, seminars LU-4 Utilize internet LU-5 Prioritize job schedule	15 Hrs.	15 Hrs.

TRAINER'S GUIDELINE

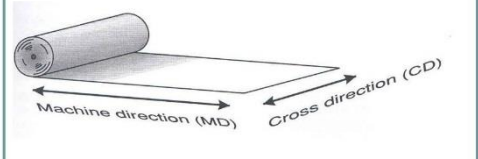



Module-1: Perform Die Cutting operation

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU-1 Perform Substrate handling	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">Define side lay and front lay.Define Importance of the substrate stacking. <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/ Hand Outs Visuals</p>
LU-2 Verify Die as per docket	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">Define creasing matrix <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand Outs Visuals</p>
LU-3 Make ready workstation for die cutting operation	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">Describe elements of make ready for a new die cutting jobDescribe the purpose of fanning.Describe the importance of creasing, rule thickness and height <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand Outs</p>
LU-4 Perform die cutting operation	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">Describe die cutting operation <p>Arrange visit to workshop</p>	<p>Class room</p> <p>Press room lab/ industrv</p>	<p>Learner's Guide/Hand outs</p>

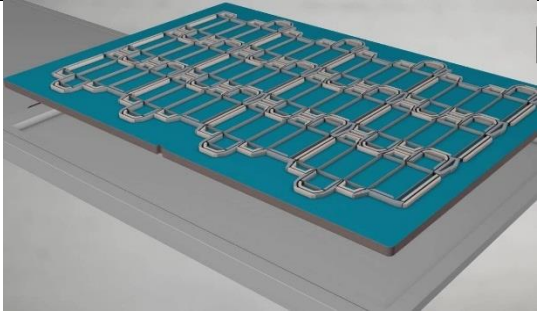
LU-5 Perform post production activity	Teach the learner the following learning elements through lecture: <ul style="list-style-type: none">• Describe the importance of maintaining/cleaning of work station Arrange visit to workshop	Classroom Press room lab/ industry	Learner's Guide/Hand Outs
LU-6 Maintain log Book	Teach the learner the following learning elements through lecture: <ul style="list-style-type: none">• Importance of record keeping	Class room	Learner's Guide/Hand outs

Practical Activity # 1

Perform Die Cutting operation		
Module: 1	Learning Unit: 1	Perform Substrate handling
	Practical Description:	Perform startup operation by gathering initial information about the substrate and rare to stack.
Time:	14 hours	
Equipment	Die cutting machine	
Tools	GSM cutter, weighing scale, Micrometer, Measuring scale, Docket	
PPE	Uniform and safety shoes.	
Materials	Handout on related topic, Paper and board	
Key Point	Gathering basic knowledge production material before starting the job.	
Learning Outcome:	<ul style="list-style-type: none"> • Verify side-lay & front-lay of the printed substrate • Verify the GSM of the substrate as per docket. • Verify thickness of substrate as per docket. • Verify substrate size as per docket. • Verify the grain of substrate as per docket. • Perform Substrate Stacking as per instruction. 	
Precautions:	Ensure to wear the uniform and safety shoes before starting this process	
Instructions		Illustrations
<p>1. Pick up a sheet and see the long side of the sheet is side lay and the short side of the sheet is front lay. Also check the job docket to verify the front lay and side lay of the sheet.</p>		

<p>2. To check the grain direction, curve the sheet (bigger side) and check the stiffness if it is hard or soft. Change the side and repeat the procedure again. The side which is soft will be machine grain direction and side which is stiff will be cross machine direction grain.</p>	<p>Representative Papermaking Machines</p>  <p>Figure 3.7 Fibers in a manufactured paper sheet tend to align themselves in the machine direction</p>
<p>3. Use a GSM cutter and cut a sample. Place it on a weighing scale and note down the reading.</p>	
<p>4. Cut a small paper/board 5cmx5cm put it inside the micrometer and check the thickness. Note the reading on the sample.</p>	
<p>5. Bring the board next to the machine, fan the paper and stack it on the machine feeder. Counting will be done by the machine.</p>	

Practical Activity # 2

		Perform Die Cutting operation																			
Module: 1	Learning Unit: 2	Verify Die as per docket																			
	Practical Description:	Identify the die as per docket and perform the job accordingly.																			
Time:	24 hours																				
Equipment	Die cutting machine																				
Tools	Die, Creasing matrix																				
PPE	Uniform, safety shoes.																				
Materials	Handout on related topic, Paper and board																				
Key Point	Cutting and creasing must be perfect.																				
Learning Outcome:	<ul style="list-style-type: none"> Verify the die ups as per docket Verify creasing matrix requirement as per thickness of the substrate. 																				
Precautions:	Ensure the die must be proper fixed on machine frame.																				
Instructions		Illustrations																			
<p>1. Check the job and verify die up's are as per job and job docket.</p>																					
<p>2. Select the creasing matrix as per thickness of the board and job requirement. See below chart for selection of crease matrix.</p>		<table border="1"> <thead> <tr> <th>S.no</th> <th>Board Thickness</th> <th>Matrix Selection</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.25 mm</td> <td>0.3x0.8 mm</td> </tr> <tr> <td>2</td> <td>0.30 mm</td> <td>0.3x1.2 mm</td> </tr> <tr> <td>3</td> <td>0.35 mm</td> <td>0.4x1.2 mm</td> </tr> <tr> <td>4</td> <td>0.40 mm</td> <td>0.4x1.3 mm</td> </tr> <tr> <td>5</td> <td>0.45 mm</td> <td>0.5x1.4 mm</td> </tr> </tbody> </table>		S.no	Board Thickness	Matrix Selection	1	0.25 mm	0.3x0.8 mm	2	0.30 mm	0.3x1.2 mm	3	0.35 mm	0.4x1.2 mm	4	0.40 mm	0.4x1.3 mm	5	0.45 mm	0.5x1.4 mm
S.no	Board Thickness	Matrix Selection																			
1	0.25 mm	0.3x0.8 mm																			
2	0.30 mm	0.3x1.2 mm																			
3	0.35 mm	0.4x1.2 mm																			
4	0.40 mm	0.4x1.3 mm																			
5	0.45 mm	0.5x1.4 mm																			

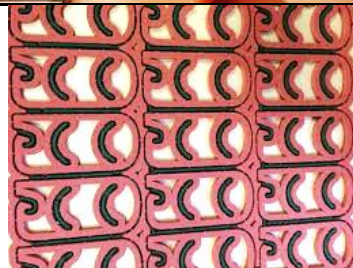
Practical Activity # 3

		Perform Die Cutting operation	
Module: 1	Learning Unit: 3	Make ready workstation for die cutting operation	
	Practical Description:	To ensure the paper setting of feeder from feeder to delivery without any hurdle.	
Time:	40 hours		
Equipment	Die cutting machine		
Tools	Allen key set, Spanner set, Scissor, Die rubber, Nicking tool, Wood hammer, Die, Die cutting		
PPE	Uniform and safety shoes.		
Materials	Handout on related topic and box board in different GSM.		
Key Point	Gather knowledge about paper setting of feeder and delivery.		
Learning Outcome:	<ul style="list-style-type: none"> • Perform nicking on cutting blade as per instruction • Set the die rubber on to the die • Mount the die on to the machine chase. • Mount machine chase on die cutting machine • Set the creasing matrix on the creasing rule. • Make impression setting of die with the help of cutting paper/Carbon paper • Perform Substrate Stacking in to the feeder • Adjust the head-lay & the side-lay • Adjust the impression as per job requirement • Adjust the feeder according to the job • Perform test run 		
Precautions:	Ensure that the substrate smoothly running from feeder up to delivery.		
Instructions		Illustrations	

1. Decide on layout where you want to do the nicking with the help of nicking tool.
Make the nicks on the cutting plate.



2. Select the rubber you want to install on the die.
Cut the rubber as per size of all the cutting rules in the die use glue to mount the die rubber



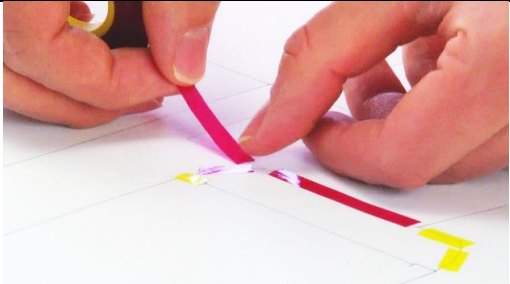




3. Mount the die on the chase, place the front lay of the die parallel to the chase front lay.
Use fitting and fixtures to mount the die on the chase.




4. Make machine come to correct position to place the chase in the machine chase location.

5. Cut all the creasing matrix as per size of the crease in the die.
Mount the creasing matrix on the creasing rule with the help of locator which is on the creasing matrix.
Peel the release the paper from the creasing matrix and take impression.
Make sure your impression plate screen and free from grease.

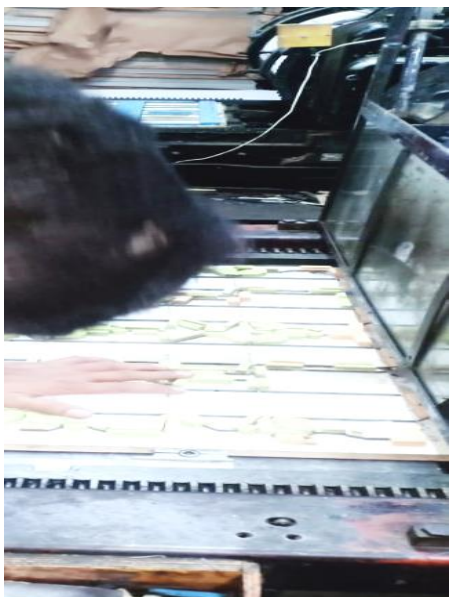


<p>6. To make the impression setting mount a key line impression on the die. Do the necessary adjustment of the cutting pressure with the help of patching tape (Cheypi).</p>	
<p>7. Mount the substrate on the feeder after fanning and make the pile align parallel to the machine marks place on the feeder. Ensure the pile is centered.</p>	
<p>8. Adjust the machine front lay and side lay as per job requirement.</p>	
<p>9. Adjust the impression and slowly increase as per job requirement.</p>	
<p>10. Adjust the feeder according to the job and perform test run.</p>	

Practical Activity # 4

		Perform Die Cutting operation	
Module: 1	Learning Unit: 4	Perform die cutting operation	
	Practical Description:	Perform die cutting and creasing to separate from up till delivery.	
Time:	160 hours		
Equipment	Die cutting machine		
Tools	Die cutting machine, Substrate		
PPE	Uniform and safety shoes.		
Materials	Handout on related topic, paper and board.		
Key Point	Ensure the quality of cutting and creasing during operation.		
Learning Outcome:	<ul style="list-style-type: none"> • Get approval from the supervisor • Carry out cutting operation as per instruction • Check & maintain the quality of die cutting 		
Precautions:	Ensure that the ups should not be separate from the sheet and delivered properly.		
Instructions		Illustrations	
<ol style="list-style-type: none"> 1. Get following approval from the supervisor before starting the job: <ol style="list-style-type: none"> a) Registration b) Proper cutting c) Proper creasing d) Proper perforation e) Proper alignment of the box 			
<ol style="list-style-type: none"> 2. Take out two set of sheets from each pile one in the center and one from the top. Check the following points: <ol style="list-style-type: none"> a) Registration b) Proper cutting c) Proper creasing d) Proper perforation e) Proper alignment of the box 			

Practical Activity # 5

		Perform Die Cutting operation	
Module: 1	Learning Unit: 5	Perform post production activity	
	Practical Description:	Ensure cleanliness after completion of the job.	
Time:	08 hours		
Equipment	Die cutting machine		
Tools	Scraper and blade		
PPE	Uniform, safety shoes, gloves and goggles		
Materials	Handout on related topic and cleaning chemical		
Key Point	To save time and to ensure long lasting of machine.		
Learning Outcome:	<ul style="list-style-type: none"> • Remove the die and cutting plate from the machine as per instruction • Clean the cutting plate as per instruction • Remove the pile form feeder and delivery. • Clean the machine & workplace 		
Precautions:	Ensure safety as required with use of PPE'S as per SOP.		
Instructions		Illustrations	
1. Inch the machine to the correct position to pull out the chase from the machine. Remove the impression plate.			
2. Remove the die from the chase and place it on the rack. Place all the proper fitting and fixtures back to its allocated position.			


3. Clean the cutting plate with the help of chemical and scraper. Ensure safety of yourself.



4. Remove the pile from feeder and delivery with tagging of material. Clean the machine and the workplace.



Practical Activity # 6


		Perform Die Cutting operation	
Module: 1	Learning Unit: 6	Maintain log Book	
	Practical Description:	To record the time data during process.	
Time:	06 hours		
Equipment	Die cutting machine		
Tools	Notes and file		
PPE	Uniform, safety shoes, gloves		
Materials	Handout on related topic and Log book.		
Key Point	Proper maintaining and filling of the log book.		
Learning Outcome:	<ul style="list-style-type: none"> • Record the final counter along-with the wastages • Record downtime during die cutting operation 		
Precautions:	Ensure recorded data must be neat written.		
Instructions		Illustrations	
1. Fill and record the log book. Ensure following records are filled: <ol style="list-style-type: none"> a) Total counter b) Wastage c) Down Time d) Any other remarks 			

TRAINER'S GUIDELINE

Module-2: Perform Waste Management

Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU-1 Manage Post press waste	Teach the learner the following learning elements through lecture: <ul style="list-style-type: none">• Understand the purpose of waste management.	Classroom	Learner's Guide/ Hand Outs Visuals
LU-2 Handle toxic chemicals	Teach the learner the following learning elements through lecture: <ul style="list-style-type: none">• Identify the difference between toxic and nontoxic materials.• Identify the difference between inflammable and non- inflammable materials.	Classroom	Learner's Guide/Hand Outs Visuals
LU-3 Handle non-toxic chemicals	Teach the learner the following learning elements through lecture: <ul style="list-style-type: none">• Describe the importance of tagging.	Classroom	Learner's Guide/ Hand Outs Visuals
LU-4 Manage solid waste	Teach the learner the following learning elements through lecture:	Classroom	Learner's Guide/ Hand Outs Visuals

Practical Activity # 1

		Perform Waste Management	
Module: 2	Learning Unit: 1	Manage Post press waste	
	Practical Description:	Sort and maintain the waste generated at the workplace according to usability with maintaining its record.	
Time:	06 hours		
Equipment	Die cutting machine		
Tools	N/A		
PPE	Uniform, Safety shoes, Gloves		
Materials	Waste bin or containers		
Key Point	Gathering basic knowledge for sorting waste material at workplace and maintain its record keeping.		
Learning Outcome:	<ul style="list-style-type: none"> • Sort the waste generated at the workplace according to usability • Tag the reusable components/item of the waste • Maintain record of reusable components of the waste • Reduce the waste generation in routine work by reuse the categorized waste as per requirement. • Handle hazardous waste as per instruction. 		
Precautions:	Sort & Handle the waste material carefully		
Instructions		Illustrations	
<ol style="list-style-type: none"> 1. Collect all the waste generated at workplace. 			

2. Sort out unusable articles



3. Place unusable articles at appropriate place and label it.



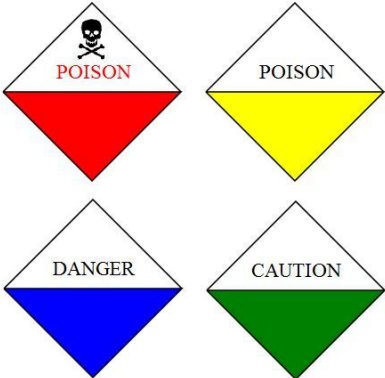

4. Dispose of waste in a proper way.



5. Record all reusable waste articles in a register



Practical Activity # 2

		Perform Waste Management	
Module: 2	Learning Unit: 2	Handle toxic chemicals	
	Practical Description:	Tagging and storing of toxic waste chemical containers at designated place	
Time:	06 hours		
Equipment	Die cutting machine		
Tools	N/A		
PPE	Uniform, Safety shoes, mask, Gloves		
Materials	Toxic Chemical waste containers		
Key Point	Keep tagging, storing and handling of toxic material carefully.		
Learning Outcome:	<ul style="list-style-type: none"> • Tag containers of toxic chemical as per instruction. • Store toxic waste at designated place. • Manage Inflammable toxic chemical waste as per instruction. • Manage non- inflammable toxic chemical waste as per instruction. 		
Precautions:	Ensure the safety		
Instructions		Illustrations	
1. Prepare tags for waste chemicals.			
2. Place containers of toxic waste at a safe place carefully.			

3. Tag the toxic containers accordingly



4. Store the toxic waste at its proper place.



5. Prepare tags for all inflammable and non-inflammable toxic waste chemicals.



6. Place containers of inflammable and non-inflammable toxic waste at a safe place carefully.



7. Tag the inflammable and non-inflammable toxic waste containers according.



8. Store the inflammable and non-inflammable toxic waste at its proper place accordingly.




9. Dispose-off all waste as per SOPs of press room.



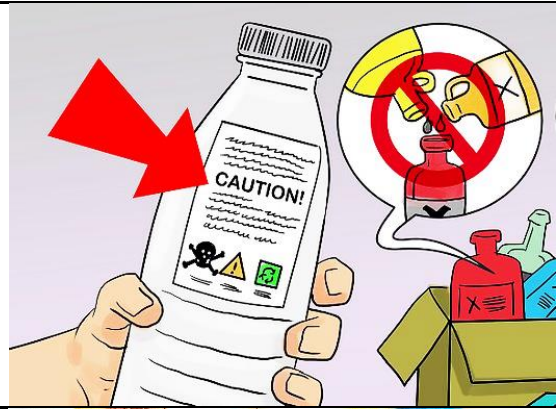
10. Wash hands thoroughly



Practical Activity # 3

		Perform Waste Management	
Module: 2	Learning Unit: 3	Handle non-toxic chemicals	
	Practical Description:	Tagging of containers of non-toxic chemical and storage of non-toxic waste to designated place. Disposal of inflammable and non-inflammable non-toxic chemical waste	
Time:	04 hours		
Equipment	Die cutting machine		
Tools	N/A		
PPE	Uniform, Safety shoes, safety mask, Gloves		
Materials	Liquid dispose of container, Container for inflammable non-toxic chemical, Container for non-inflammable non-toxic chemical, Waste bin.		
Key Point	Keep tagging and storing of non-toxic material carefully		
Learning Outcome:	<ul style="list-style-type: none"> • Tag containers of non-toxic chemical as per instruction. • Store nontoxic waste at designated place. • Dispose-off inflammable non- toxic chemical waste as per instruction. 		
Precautions:	Ensure safety		
Instructions		Illustrations	
1. Prepare tags for non-toxic waste chemicals.			

2. Put the nontoxic waste in the container carefully.



3. Store the nontoxic waste container at its proper place thoroughly.







4. Segregate inflammable and non-inflammable non-toxic chemicals waste


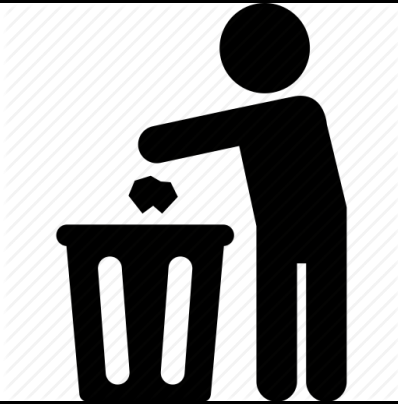


5. Dispose of flammable non-toxic chemical.



<p>6. Dispose of non-inflammable non-toxic chemical as per SOPs.</p>	 A circular prohibition sign with a red border and a diagonal red slash. Inside the circle is a black flame icon, indicating that fire is prohibited.
<p>7. Remove gloves, mask</p>	 A photograph of a person's head and shoulders wearing a white surgical mask and a dark blue shirt.
<p>8. Recheck no waste is left to dispose-off.</p>	 A photograph of a workshop or laboratory setting. In the foreground, there is a wooden workbench. In the background, there are blue and yellow waste bins and other equipment.
<p>9. Wash hands gently.</p>	 A circular sign with a light blue background. At the top, the text "WASH YOUR HANDS" is written in a black, curved font. Below the text is a black silhouette of a hand being washed under water flowing from a faucet.

Practical Activity # 4

		Perform Waste Management	
Module: 2	Learning Unit: 4	Manage solid waste	
	Practical Description:	Sort and put solid waste in waste bin according to disposable categories, and store waste bins at designated place	
Time:	04 hours		
Equipment	N/A		
Tools	N/A		
PPE	Uniform, Safety shoes, Gloves		
Materials	Waste bins		
Key Point	Carefully sorting of solid waste		
Learning Outcome:	<ul style="list-style-type: none"> • Tag containers of printed & un-printed substrate waste as per instruction. • Sort substrate waste according to disposable categories • Store printed substrate waste in designated waste container. • Store un-printed substrate waste in designated waste container. 		
Precautions:	Ensure safety first		
Instructions		Illustrations	
<p>1. Sort out solid waste according to disposable categories.</p>			
<p>2. Put solid waste in waste bin carefully.</p>			

3. Store solid waste bin to its designated place.



4. Wash your hands gently.





TRAINER'S GUIDELINE

Module-3: Perform Embossing


Learning Unit	Suggested Teaching/ Learning Activities	Delivery Context	Media
LU-1 Perform Substrate handling	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">• Identify side lay and front lay.• Describe the purpose of fanning <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/ Hand Outs Visuals</p>
LU-2 Make ready workstation for Embossing	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none">• Describe the procedure of mounting of block on die.• Describe the importance of block thickness and height. <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand Outs Visuals</p>







<p>LU-3 Perform Embossing operation</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> Describe Embossing operation <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand Outs</p>
<p>LU-4 Perform post production activity</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> Describe the importance of maintaining/cleaning of work station <p>Arrange visit to workshop</p>	<p>Class room</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand outs</p> <p>Practice Guide</p>
<p>LU-5 Maintain log Book</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> Importance of record keeping 	<p>Classroom</p>	<p>Learner's Guide/Hand Outs</p>

Practical Activity # 1


		Perform Embossing	
Module: 3	Learning Unit: 1	Perform Substrate handling	
	Practical Description:	Perform fanning process and place substrate on feeder	
Time:	08 hours		
Equipment	Die cutting machine feeder side		
Tools	Micrometer Weighing scale with cutter		
PPE	Uniform and safety shoes		
Materials	Handout on related topic		
Key Point	Proper handling of substrate		
Learning Outcome:	<ul style="list-style-type: none"> • Verify side-lay & front-lay of the printed substrate • Perform Substrate Stacking as per instruction. • Verify the thickness and GSM value of the substrate. 		
Precautions:	Ensure that don't improper feeding.		
Instructions		Illustrations	
1. PPE's must be followed.			
2. Perform fanning process.			
3. Proper placing of paper in the feeder.			

Practical Activity # 2


		Perform Embossing	
Module: 3	Learning Unit: 2	Make ready workstation for Embossing	
	Practical Description:	Male female side of the die place on its specific place for embossing	
Time:	26 hours		
Equipment	Die cutting machine		
Tools	Allen key set, Spanner set, Scissor, Embossing block and counter block, Die cutting machine		
PPE	Uniform and safety shoes		
Materials	Handout on related topic		
Key Point	Fixing of male female die on it proper place		
Learning Outcome:	<ul style="list-style-type: none"> • Set the Embossing block on to the die • Adjust the feeder according to the job • Perform Substrate stacking in to the feeder • Adjust the front-lay & the side-lay • Mount the die on to the machine • Fix the counter block on the impression plate. • Adjust the registration as per job. • Adjust block impression as per instruction • Perform test run 		
Precautions:	Be careful with the cutting blades during fixing of male female die		
Instructions		Illustrations	
<ol style="list-style-type: none"> 1. Place the die wood on a table and mount the block on the die with the help on key line. 			

<p>2. Fixing of male female die on its proper place.</p>	
<p>3. Adjust the feeder, stack the material in the feeder.</p>	
<p>4. Adjust the front-lay & the side-lay</p>	
<p>5. Mount the die on to the machine</p>	
<p>6. Fix the counter block on the impression plate</p>	
<p>7. Adjust registration and Impression 8. Perform test run.</p>	

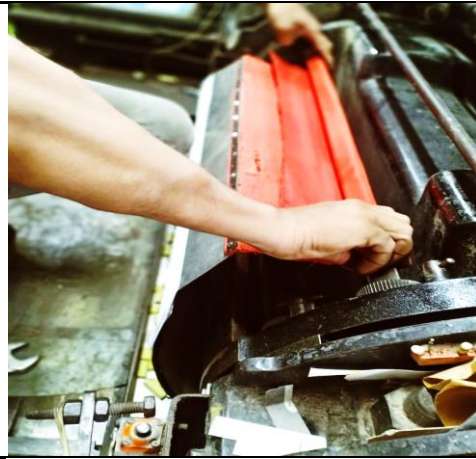
Practical Activity # 3

		Perform Embossing	
Module: 3	Learning Unit: 3	Perform Embossing operation	
	Practical Description:	During test run observe the accuracy of embossing process and in case of any abnormality adjust as required	
Time:	64 hours		
Equipment	Die cutting machine		
Tools	Allen key set, Spanner set, Scissor, Embossing block and counter block, Die cutting machine		
PPE	Uniform and safety shoes		
Materials	Handout on related topic		
Key Point	Embossing must be at its proper place on the printed sheet		
Learning Outcome:	<ul style="list-style-type: none"> • Get approval from the supervisor • Carry out Embossing operation as per instruction • Check & maintain the quality of Embossing 		
Precautions:	Ensure all safeties as required on die cutting machine.		
Instructions		Illustrations	
1. Get following approval from the supervisor before starting the job: <ol style="list-style-type: none"> a) Registration b) Embossing high 			
2. Take out two set of sheets from each pile one in the center and one from the top: Check the following points: <ol style="list-style-type: none"> a) Registration b) Embossing high 			

Practical Activity # 4

		Perform Embossing	
Module: 3	Learning Unit: 4	Perform post production	
	Practical Description:	Removing the die and cutting plate from the machine, perform cleaning activity on both then placed the die with plate on its proper place	
Time:	08 hours		
Equipment	Die cutting machine		
Tools	Allen key set, Spanner set, Scissor, Embossing block and counter block, Die cutting machine		
PPE	Uniform, safety shoes and gloves		
Materials	Cleaning brush, cloth & scraper		
Key Point	Proper dismantle of die board and cutting plate		
Learning Outcome:	<ul style="list-style-type: none"> • Remove the die and Impression plate from the machine as per instruction • Clean the cutting plate as per instruction • Remove the pile form feeder and delivery. • Clean the machine & workplace 		
Precautions:	Ensure safety during dismantling of the die and cutting blade		
Instructions		Illustrations	
<ol style="list-style-type: none"> 1. Inch the machine to its position. First turn off the machine and take out the die section. 			


2. Remove the die from its section and also cutting plate.



3. Perform cleaning plate and machine.




Practical Activity # 5

		Perform Embossing	
Module: 3	Learning Unit: 5	Maintain log Book	
	Practical Description:	To record the time data during process.	
Time:	06 hours		
Equipment	Die cutting machine		
Tools	Notes and file		
PPE	Uniform, safety shoes, gloves		
Materials	Handout on related topic and Log book.		
Key Point	Proper maintaining and filling of the log book.		
Learning Outcome:	<ul style="list-style-type: none"> • Record the final counter along-with the wastages • Record downtime during die cutting operation 		
Precautions:	Ensure recorded data must be neat written.		
Instructions		Illustrations	
<ol style="list-style-type: none"> 1. Fill and record the log book. Ensure following records are filled: <ol style="list-style-type: none"> a) Total counter b) Wastage c) Down Time Any other remarks 			

<p>LU-3 Attend trade shows workshop, seminars</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> • Identify the need of skill sets by getting involved in seminars, Read books/magazines related with mechanical manufacturing trade. • Describe short keys for MS office • Define production plan • Give advantages of preparation of production plan 	<p>Classroom</p>	<p>Learner's Guide/Hand Outs Visuals</p>
<p>LU-4 Utilize internet</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> • Describe procedure of creating E-mail account • Describe browsing techniques to find appropriate web site • Describe procedure of sending E-mail • Identify internet browsing/search engine 	<p>Classroom</p>	<p>Learner's Guide/Hand Outs Visuals</p>
<p>LU-5 Prioritize job schedule</p>	<p>Teach the learner the following learning elements through lecture:</p> <ul style="list-style-type: none"> • Apply press room mathematical skills during training. • Apply technical English skills during training. • Identify press room Key Performance Indicators (KPIs). <p>Arrange visit to workshop</p>	<p>Classroom</p> <p>Press room lab/ industry</p>	<p>Learner's Guide/Hand Outs Visuals</p>

Practical Activity # 1

		Develop professionalism	
Module: 4	Learning Unit: 1	Participate in in-house training	
	Practical Description:	Clean workstation	
Time:	03 hours		
Equipment	N/A		
Tools	Cleaning cloth, Dustpan		
PPE	Proper dress code, safety gloves, safety shoes		
Materials	Cleaning agent, caution signs		
Key Point	Oil and water on the floor should be properly cleaned so that no residue is left		
Learning Outcome:	<ul style="list-style-type: none"> • Identify latest training needs according to recent printing industry demands. • Get enrolled in advance press training course. • Follow training institute's policies for professional development. • Perform training task mentioned in TLM. 		
Precautions:	When using hazardous chemicals, read manufacturer's instructions for safety		
Instructions		Illustrations	
1. Check for dust, `debris, water and oil spill around the work floor			

2. Pick up a clean cloth and wipe the floor



3. Collect the dust and debris in a dustpan



4. Ensure cleanliness of oil spots on the floor/working table





5. Perform drying of wet floor with the help of cloth.








6. Mark the freshly cleaned area with a caution sign



Practical Activity # 2

		Develop professionalism	
Module: 4	Learning Unit: 2	Participate in outdoor training	
	Practical Description:	Collect information about the new printing training courses	
Time:	03 hours		
Equipment	Computer with internet		
Tools	Training brochures		
PPE	N/A		
Materials	Tools/equipment list, Training provider's brochures, TLM		
Key Point	Stay focused when browsing for new training opportunities		
Learning Outcome:	<ul style="list-style-type: none"> • Promote Kaizen in printing industry. • Implement 5S's at work place. • Maintain schedule chart according to organizational policies. • Provide logistic support for press room machinery during maintenance. 		
Precautions:	Identify a field of work to get your advanced training in.		
Instructions		Illustrations	
1. Make a list of your current activities in the pressroom and identify your weak points which needs to be improved			
2. Take input from your classmates and trainer and ask them what should be your next training			

<p>3. Ask your trainer which institutes offer training in the mentioned functions collect brochures if available</p>	
<p>4. Browse the internet for specific printing training institutes</p>	
<p>5. Note down the contact information for the course being offered</p>	
<p>6. Call the institute and ask for the timing and duration of the course</p>	
<p>7. Inform your trainer/supervisor about the available course and timings and ask them if you can join advance course without disrupting current activities or you will need an exemption from current training/work</p> <p>8. Join the advance training course</p>	

Practical Activity # 3

		Develop professionalism	
Module: 3	Learning Unit: 3	Attend trade shows workshop, seminars	
	Practical Description:	Attending the shows related to the printing industries, seminars and workshops for knowledge on latest printing techniques and innovative technologies.	
Time:	03 hours		
Equipment	N/A		
Tools	N/A		
PPE	N/A		
Materials	National and International Magazines and Operation Manual		
Key Point	Ensure access to the relevant offset printing information		
Learning Outcome:	<ul style="list-style-type: none"> • Adopt upcoming market trends in printing trade by attending workshop and seminar. • Participate in skill test for professional development with concentration. • Participate in skill up-gradation courses with devotion. • Participate in professional seminars with concentration to acquire first hand industrial knowledge. • Participate in industrial visits on schedule. • Consult senior experts to get advice. • Watch videos/documentaries related with printing and packaging industry. • Perform internet browsing related to printing industry. 		
Precautions:	Gain first hand industrial knowledge by participating in professional seminars.		
Instructions		Illustrations	

1. Visit offset printing exhibition to get exposure of latest techniques and technologies.



2. Attend seminars to get updated with the latest printing techniques.





3. Read printing magazines and improve the knowledge up to date with all the news and innovative technologies.


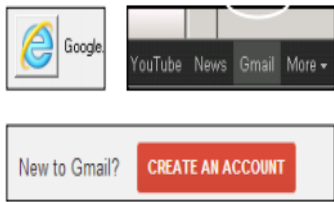
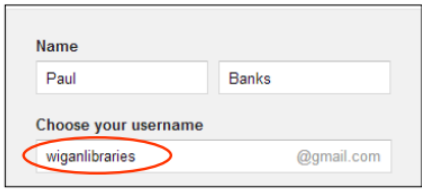
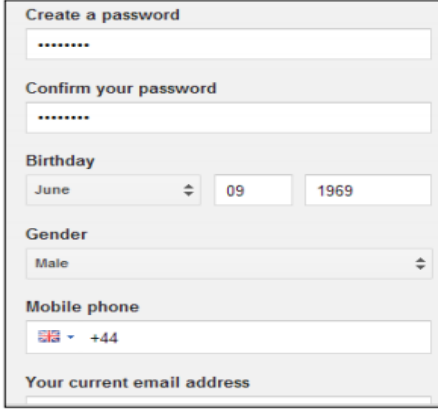
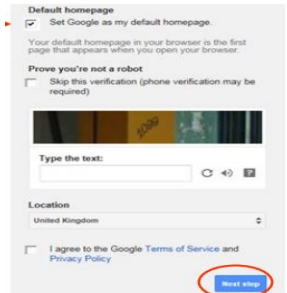


4. Attend workshops related to the printing press for knowledge of the workflow of a printing press

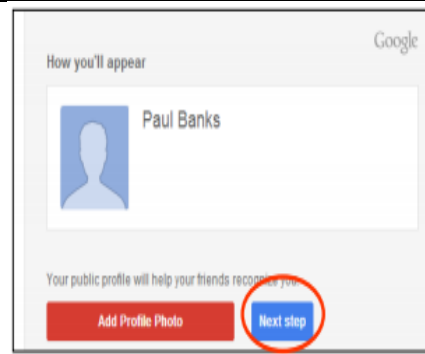


Practical Activity # 4

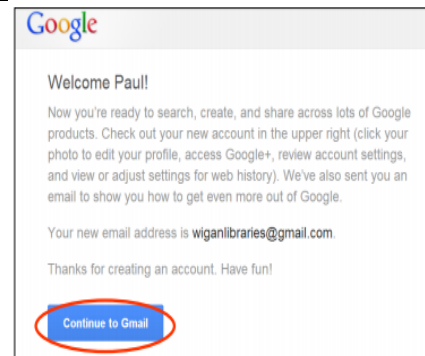
		Develop professionalism	
Module: 3	Learning Unit: 4	Utilize internet	
	Practical Description:	Communication via E-mail with the help of internet.	
Time:	03 hours		
Equipment	Computer with internet		
Tools	N/A		
PPE	N/A		
Materials	Handout on related topic, Flip Chart, Pen, Pencil ,Paper .Note book		
Key Point	Software downloading, data searching on different webs, fast communication and correspondence with concerns personals with the help of electronic mail.		
Learning Outcome:	<ul style="list-style-type: none"> • Ensure format or structure of the correspondence is according to company's practice. • Browse website as per desire. • Download related software as per desire. • Perform required communication via internet with in specified time limits. 		
Precautions:	N/A		
Instructions		Illustrations	
1. Click on the internet explorer or Google chrome icon for open any web page.		 	

<p>2. Click on address box and browse your required web page.</p>	
<p>3. Click on the Google link on the people's network. Then click on the Gmail link near the top left of the page. If using a computer elsewhere perform an Internet search for Gmail. Click on create an account.</p>	
<p>4. Choosing your email address to set up your new account, Google needs some information about you. Type your first and last names. To create an email, you need to choose a username. Your email address will be your username followed by '@gmail.com'.</p>	
<p>5. Choosing your password that is 8 characters or more. Make sure your password is secure and one that you can remember! Secure passwords include combinations of upper and lowercase letters and numbers. Verifying your Gmail account type your birthday and gender. Enter your mobile telephone number or an alternative email address if you have one.</p>	
<p>6. Prove you're not a Robot! You may want to uncheck the box next to set Google as my default homepage'. Type in the letters or digits as they appear on the screen. Agree to the terms of service by checking the box.</p>	

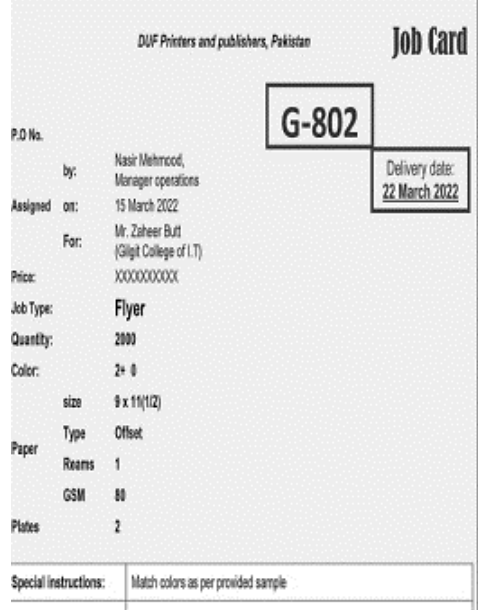
7. Click on next step. (you can add a profile picture at a later stage)







8. You have created an email account!
To start using email click on
continue to Gmail.



Practical Activity # 5

		Develop professionalism	
Module: 3	Learning Unit: 5	Prioritize job schedule	
	Practical Description:	Interpret docket / job card	
Time:	03 hours		
Equipment	N/A		
Tools	N/A		
PPE	N/A		
Materials	Docket / job card, log book		
Key Point	It is important to correctly interpret the job card in order to avoid confusion		
Learning Outcome:	<ul style="list-style-type: none"> Interpret production plan as per supervisor's instruction. Create daily schedule according to priority of production plan. Comprehend material priorities for hindrance less production, Develop list of required tools for hindrance less production, Calculate time required for production Determine sequence of activities. Report delays to superior in prescribed manners. 		
Precautions:	Read carefully, do not miss out information.		
Instructions		Illustrations	
<p>1. Collect the docket/job card</p>			

<p>2. Match the details with the provided equipment, materials and tools</p>	
<p>3. Match the size of substrate and number of plates provided with the docket/ job card.</p>	
<p>4. If found any error, report to the supervisor</p>	
<p>5. Note the time required for the job and the time available in the shift</p>	
<p>6. Start the printing process</p>	

IMPLEMENTATION OF CBT PROGRAM

Entry Requirement:

Entry for assessment for this qualification is open for CNIC holders. However, entry in institute for formal Competency Based Training (CBT) in this qualification, the candidate must have Middle School Certificate with 3 year experience of Post press Operations (Preferable Matric).

Minimum qualification of trainer:

- a. Trainer must possess a diploma (DAE) or intermediate along with 5 years' experience in the field of Post Press Operations.
- b. Good communication and computer skills
- c. Trained for CBT implementation

Recommended trainer, trainee ratio

Institutional Training: 16~20 on Job Training (OJT): 1:4~8

Medium of instructions:

Local / Urdu / English (depending on the learner's understanding)

Proposed duration of Training;

Institutional Training: 04 Month

OJT: 02 Month

Scheme of work:

This curriculum comprises of 6 modules.

The recommended delivery time is: 500 hours/50 credit hours.

Delivery of the course can therefore be: 06 hours/working day, 5 days a week (for 04 months institution training)

07 hours a day (for 02 months OJT on average 22/26 working days a month).

Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.


GENERAL INSTRUCTIONS FOR TRAINER/INSTRUCTOR


Following are some general instructions for Trainers/Instructors:

1. Instructor should perform the role of a facilitator and it is his/her responsibility to focus on the training of learners. He/she must be responsible to make the environment of class friendly, so that the learner can easily understand and ask the questions from the Trainer.
2. Motivate the learners to discuss the new ideas as under;
 - By asking questions
 - By using flash card/charts
 - By making the topic interesting through real stories/example
3. The theory/practical ratio must be considered as 20%/80%.
4. First provide knowledge and then perform practical demonstration.
5. Time management should be the first priority of Trainers as well as for learners
6. A detailed explanation should be conveyed to the learners by the Trainer about each learning unit.
7. After performing practical demonstration, allow the learners to do the same demonstration according to the given sequence and arrange essential requirements, so that each learner can easily perform the task individually or in group.
8. To enhancing the knowledge of learners, allow them for group discussion.
9. Learner will be divided into small groups by the Trainer.
10. Each group should present their practical job to the Instructor at the end of the session.
11. Specific time should be given for each competence.
12. Plan field trip/visit to relevant industries to enhance learner's interest and motivation.

National Vocational and Technical Training Commission (NAVTTTC)

 Plot 38, Kirthar Road, Sector H-9/4, Islamabad, Pakistan

 +92 51 9044 322

 +92 51 9044 322

 info@navttc.org

 www.navttc.org