

National Vocational Certificate Level II in Printing & Packaging Technology (Assistant Offset Printing Machine Operator)



CBT Curriculum



National Vocational & Technical Training Commission

5th Floor Evacuee Trust Complex

Sector F-5/1, Islamabad

Tel: +92 51 904404

Fax: +92 51 904404

Email: info@navttc.org

Author:

Reviewed by:

Layout and design by:

Date of approval by NCRC

Date of Notification

This Curriculum-----

TABLE OF CONTENTS

<u>S.NO.</u>	<u>Contents</u>	<u>Page</u>
1	Introduction:	4
	1.1- Entry requirement	4
	1.2- Minimum qualification of trainer	4
	1.3- Recommended trainer, trainee ratio	4
	1.4- Medium of instruction	4
	1.5- Proposed duration of training	4
	1.6- Sequence of modules	4
2	Overview of curriculum for Assistant Offset Machine Operator	5
3	Modules	7
	Module A: Perform pre-run maintenance	7
	Module B: Interpret printing instructions on docket	9
	Module C: Make ready print	11
	Module D: Perform print run	14
	Module E: Perform post production activities	16
	Module F: Complete documentation requirements	19
	Module G: Adhere to safety standards and regulations	
4	List of tools	20
5	List of machinery & equipment	21
6	Assessment guidance	22
7	Principles of assessment	27

1- Introduction

This Competency Based Training (CBT) curriculum is developed for National Vocational Level 2 in Printing & Packaging Technology qualification of Assistant Offset Printing Machine Operator. This curriculum is designed to focus the need, importance and understanding of Assistant Offset Machine Operator as per the current competitive, challenging and growing printing industrial demands. The assistant offset machine operator can work in printing press to perform pre-print, print and post print operations on offset machine.

The curriculum for Assistant Offset Printing Machine Operator training is developed by a group of practitioners supported by the TVET Sector Support Program in collaboration with National Vocational & Technical Training Commission (NAVTTTC) Pakistan to ensure input and ownership of all the stakeholders. NAVTTTC approves this curriculum on the recommendation of National Curriculum Review Committee (NCRC) for the Services sector.

The curriculum shall be used as a guideline document for the implementation of Competency Based Training and development of TLM.

1.1- Entry Requirements

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 Secondary School Certificate /Matric or equivalent however a person who has at least two years working experience at printing press after eight years of schooling is eligible to be a candidate for training.

1.2- Minimum qualification of trainer:

- a. Matric with 5 years working experience in printing industry
- b. Experience of teaching (at least one year)
- c. Good communication and computer skills
- d. Trained for CBT implementation

1.3- Recommended trainer, trainee ratio

Institutional Training: 1:16~20

On Job Training (OJT): 1:4~8

1.4-Medium of instructions:

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

1.5- Proposed duration of Training;

Institutional Training: 03 Month

OJT: 03 Month

1.6- Sequence of the modules:

This curriculum comprises of 7 modules. The recommended delivery time is 820 hours/82 credit hrs. Delivery of the course can therefore be 5 hours/working day, 5 days a week, for 03 month institution training and 07 hours a day for 03 month OJT (on average 22 working days a month).

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

2- Overview of Curriculum

Module	Learning Unit	Time(Hours)		
		Theory	Pract.	Total
<p>A- Perform pre-run maintenance</p> <p>Overview: This module describes the performance outcomes of skills and knowledge required for an assistant offset machine operator to perform pre-run maintenance, in accordance with approved procedures. The learner expected to perform cleaning, maintain oil level in machine and perform inching process as per SOP in a Printing press. The underpinning knowledge for this Competency Standard is about the main parts of offset printing machine, cleaning method of the machine, necessity of keeping oil level in the machine maintained, and performing inching procedure before printing.</p>	<p>LU-1-1 Perform cleaning in press room</p> <p>LU-1-2 Maintain oil level</p> <p>LU-1-3 Inch printing machine</p> <p>LU-1-4 Record humidity in press room</p>	15	60	75
<p>B- Interpret printing instructions on docket</p> <p>Overview: This module describes the performance outcomes skills and knowledge required for an assistant offset machine operator to Interpret printing instructions from detailed job order package or docket in accordance with approved procedures. The learner will be expected to determine job order details, verify plates concerned with the printing job, test and verify the quality of material supplied for the job, check and verify paper sizing and cutting and art work of the job to be printed on machine. Paper quality, material quality knowledge, and mathematical skills are underpinning knowledge and skills for the Competency Standard</p>	<p>LU-2-1 Determine job order details</p> <p>LU-2-2 Verify plates as per job requirement</p> <p>LU-2-3 Verify material quality</p> <p>LU-2-4 Verify substrate sizing</p> <p>LU-2-5 Verify artwork</p>	10	30	40

<p>C- Make ready print Overview: This module describes the performance outcomes skills and knowledge required for an assistant offset machine operator to perform pre-printing operations termed as make ready print. A person will be expected to prepare paper stock to be fed in machine for printing, mounting printing plates on machine, adjust various machine parts & getting a sample print before starting production on machine. This unit covers the knowledge regarding paper specifications & adjustments, printing machine parts and operational knowledge of offset printing machine.</p>	<p>LU-3-1 Perform machine feed LU-3-2 Mount printing plates on plate cylinder LU-3-3 Adjust machine side lay LU-3-4 Adjust machine head-lay LU-3-5 Adjust machine feeder LU-3-6 Adjust paper delivery LU-3-7 Adjust cylinders impression LU-3-8 Perform paper run</p>	<p>10</p>	<p>70</p>	<p>80</p>
<p>D-Perform Print run Overview: This module is designed to enable the learner to perform print run by following the instructions for maintaining balance between ink and water, eliminating dot gain, maintaining registration and controlling ΔE on offset printing machine.</p>	<p>LU-4-1 Maintain balance between ink and water. LU-4-2 Manage dot gain LU-4-3 Maintain registration LU-4-4 Control Delta E values / variation</p>	<p>10</p>	<p>30</p>	<p>40</p>
<p>E-Perform Post production activities Overview: This module describes the performance outcomes, skills and knowledge required for an assistant offset machine operator to perform post printing activities. This includes washing of ink roller cleaning, washing printing plates, printing blanket, impression cylinders, dampening rollers and ink knives.</p>	<p>LU-5-1 Perform ink rollers cleaning LU-5-2 Wash printing plates LU-5-3 Wash printing Blanket LU-5-4 Clean impression cylinder LU-5-5 Wash dampening rollers LU-5-6 Perform ink knives cleaning</p>	<p>10</p>	<p>70</p>	<p>80</p>
<p>F- Complete Documentation Requirements Overview: This module identifies the competencies required to develop complete documentation. The individual will be expected to document work time information and maintain printing machine log manually and on computer. This underpinning knowledge regarding computer operation, record</p>	<p>LU-6-1 Document work time LU-6-2 Document information LU-6-3 Maintain machine log</p>	<p>20</p>	<p>20</p>	<p>40</p>

keeping inventory system of printing press will be sufficient to provide the basis for quality documentation.				
<p>G- Adhere to Safety Standards and Regulations</p> <p>Overview: This module identifies the competencies required to apply occupational health and safety procedures at printing press by an offset machine operator in accordance with the organization’s approved guidelines and procedures. Learner will be expected to identify hazards in workplace, comply with health and safety precautions, use of personal protective equipment and practicing safe work habits at workplace at all times. The underpinning knowledge regarding occupational health and safety procedures will be sufficient to provide the basis for printing work.</p>	<p>LU-7-1 Identify hazards in printing press environment</p> <p>LU-7-2 Comply with Occupational Health and Safety (OHS)precautions</p> <p>LU-7-3 Use Personal Protective Equipment(PPE)</p> <p>LU-7-4 Practice safe work habits to ensure safety in the printing & publishing environment</p> <p>LU-7-5 Demonstrate firefighting skills</p>	10	35	45
	Total	85	315	400

3- Teaching & Learning Guide - Assistant Offset Printing Machine Operator)

Module A: Perform pre-run maintenance

Overview: This module describes the performance outcomes of skills and knowledge required for an Assistant Offset Printing Machine Operator to perform pre-run maintenance, in accordance with approved procedures. The learner will be expected to perform cleaning, maintain oil level in printing machine and perform inching process safely as per standards operating procedures in a Printing press. The underpinning knowledge for this Competency Standard is about the main parts of offset printing machine, cleaning method of the machine, necessity of keeping oil level in the machine maintained, and performing inching procedure before printing.

Duration: Total hours: 75 (Theory 15 Hrs.; Practical 60 Hrs)

Learning Unit	Learning Outcomes	Learning Elements	Duration (Hours)	Materials (Tools & Equipment) Required	Learning Place
LU-1-1 Perform cleaning in press room	<p>The learner will be able to:</p> <ul style="list-style-type: none"> perform daily cleaning of printing surrounding as per press room SOPs, perform cleaning of the machine as per OEM manual, perform cleaning of associated tools as per press room SOPs, perform periodic cleaning as per duty chart. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> state history and types of printing, enlist main parts of offset printing machine, describe the importance of tidiness in press room, describe method of cleaning in press, list work place cleaning equipment, list work place cleaning consumable. 	<p>TH6 Hrs.</p> <p>PR.25 Hrs</p>	<p>Offset printing machine</p> <p>Cleaning brush</p> <p>Dust bin /waste trolley</p>	<p>Class room and Press room lab/ industry</p>

Learning Unit	Learning Outcomes	Learning Elements	Duration (Hours)	Materials (Tools & Equipment) Required	Learning Place
LU-1-2 Maintain oil level	<p>The learner will be able to:</p> <ul style="list-style-type: none"> compare quality of oil in machine with quality recommended in machine manual, maintain oil level as per machine specifications. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define viscosity, give disadvantage of using low quality oil in machine, determine capacity of oil tank in printing machine, define oil grading system in printing machine, list reasons to maintain oil level in machines. 	TH3 Hrs PR.14 Hrs	Offset printing machine Funnel -Spanners set -Allen key set OEM Manual	Class room and Press room lab/ industry
LU-1-3 Inch printing machine	<p>The learner will be able to:</p> <ul style="list-style-type: none"> perform inching procedure on printing machine as per SOPs, verify inching through test print. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define inching, describe importance of inching, list effects of avoiding inching, describe inching procedure on offset printing machine. 	TH 4 Hrs PR. 16 Hrs	-Offset printing machine	Class room and Press room lab/ industry
LU-1-4 Record humidity in press room	<p>The learner will be able to:</p> <ul style="list-style-type: none"> verify humidity of press room as per press room SOPs, apply humidity management techniques in press room. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define humidity, describe importance of manage humidity in press room environment, enlist method of humidity management in press room. 	TH2 Hrs PR.5Hrs	-Humidity meter/ hydrometer	Class room and Press room lab/ industry

Module B: Interpret Printing instructions on Docket

Overview: This module describes the performance outcomes skills and knowledge required for an assistant offset machine operator to Interpret printing instructions from detailed job order package or docket in accordance with approved procedures. The learner will be expected to determine job order details, verify plates concerned with the printing job, test and verify the quality of material supplied for the job check and verify paper sizing and cutting and art work of the job to be printed on machine. Paper quality, material quality knowledge, mathematical skills are underpinning knowledge and skills for the Competency Standard

Duration: Total hours: 40 (Theory: 10 Hrs.; Practical 30 Hrs.)

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-2-1 Determine job order details	<p>The learner will be able to:</p> <ul style="list-style-type: none"> determine job title from docket/job card, verify availability of reference specimen in docket/job card, determine colour sequence of job as per docket/job card requisition, determine coating applications on from docket/job card. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> describe importance of docket/job card, define docket/job card, enlist information available on docket/job card, define shade card, state importance of colour sequencing, define applications of coatings, list types of coatings used in offset printing. 	<p>TH 2 Hrs PR.8 Hrs</p>	- Docket/job card.	Class room and Press room lab/ industry

<p>LU-2-2 Verify plates as per job requirement</p>	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • verify conditions of plates for any physical damage, • determine dot percentage on printing plates, • verify colour plates as per given reference specimen, • determine plate size for designated machine from docket/job card, • determine traceability marks on printing plate as per printing requirement, • verify plate characteristics as per dot strip. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • define traceability marks, • define printing plate, • list types of printing plates, • define dot percentage, • state precautions to be taken in printing plates handling. 	<p>TH 2 Hrs PR. 10 Hrs</p>	<p>-Plate reader - Printing plate -Eye glass</p>	<p>Class room and Press room lab/ industry</p>
--	--	---	--------------------------------	--	--

<p>LU-2-3 Verify material quality</p>	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • determine substrate type as per docket/job card requisition, • determine grain of substrate as per docket/job card requisition, • determine Gram per Square Meter(GSM) value of substrate as per docket/job card requisition, • manage inks as per docket/job card requisition, • determine L*A*B* values of substrate as per docket/job card requisition, • maintain L*A*B* values of ink as per docket/job card requisition, • maintain viscosity for coating used as per Technical Data Sheet (TDS) of coating. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • describe substrate for offset printing, • define GSM values, • describe effects of variation in GSM values, • define grain of substrate, • state determination method of substrate grain, • define L*A*B* values, • describe method of L*A*B* values management/control, • state importance of maintaining viscosity of coatings. 	<p>TH 2 Hrs PR. 4 Hrs</p>	<p>-Micrometer - Spectrophotometer -Din 4mm cup</p>	<p>Class room and Press room lab/ industry</p>
---------------------------------------	---	---	-------------------------------	---	--

LU-2-4 Verify substrate sizing	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • verify size of substrate as per docket/job card, • verify trimming of substrate for alternate size of job as per requirement. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • state method of checking substrate sizes, • describe effect of size variation on substrate, • state substrate trimming procedure. 	TH 2 Hrs PR. 4 Hrs	--Measuring tape/steel ruler	Class room and Press room lab/ industry
LU-2-5 Verify artwork	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • verify artwork as per specimen, • verify artwork from plates. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • define artwork in printing industry. 	TH 2 Hrs PR. 4 Hrs	Eye glass	Class room and Press room lab/ industry

Module C: Make ready print

Overview: This module describes the performance outcomes skills and knowledge required for an assistant offset machine operator to perform pre-printing operations termed as make ready print. A person will be expected to prepare paper stock to be fed in machine for printing, mounting printing plates on machine, adjust various machine parts & getting a sample print before starting production on machine. This unit cover the knowledge regarding paper specifications & adjustments, printing machine parts and operational knowledge of offset printing machine.

Duration: Total hours: 80 Theory: 10 Hrs. Practical 70 Hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-3-1 Perform machine feed	<p>The learner will be able to:</p> <ul style="list-style-type: none"> prepare substrate according to docket/job order, feed substrate into feeder section in order 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> Identify printing side as given specimen, describe the steps of loading paper on the feeder section. 	TH 2 Hrs PR. 12 Hrs	Offset printing machine Pre-piling stand / Table Allen key Spanners set	Class room and Press room lab/ industry
LU-3-2 Mount printing plates on plate cylinder	<p>The learner will be able to:</p> <ul style="list-style-type: none"> punch plate from head lay according to marking, bend plate from end lay side by measuring it on the machine, mount plate on plate cylinder as per procedure. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> describe purpose of plate punching machine, describe position of plate's endlay to ensure proper bending, describe steps of plate mounting procedure. 	TH 1 Hrs PR. 12 Hrs	Offset printing machine Plate punching machine Plate bending machine Spanners	Class room and Press room lab/ industry

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
				set Tommy bar Ratchet set Correcting brush /correction pen	
LU-3-3 Adjust machine side lay	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • adjust side lay according to job requirements, • adjust side lay for errorless registration, • adjust edge of the papers according to side lay mark. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • give purpose of side lay in printing machine, • describe the steps involve for the side lay adjustment, • describe the steps involve for colour registration, • describe the position of side lay for perfect registration. 	TH 2 Hrs PR. 12 Hrs	Offset printing machine Allen key set	Class room and Press room lab/ industry
LU-3-4 Adjust machine head-lay	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • adjust head lay according to substrate size, • adjust head lay as per job requirement. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • give purpose of head lay in printing machine, • give importance of head lay adjustment, • describe the procedure of head lay adjustment. 	TH 1 Hrs PR. 8 Hrs	Allen key set Spanner set	Class room and Press room lab/ industry

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-3-5 Adjust machine feeder	<p>The learner will be able to:</p> <ul style="list-style-type: none"> adjust measure bar, adjust air vacuum pressure of feeder, set vacuum pressure setting according to substrate type, set feeder according to substrate type. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> describe effects of wrong feeder adjustment, describe feeder adjustment procedure, describe handling and care of printed and unprinted paper, 	TH 1 Hrs PR. 8 Hrs	Offset printing machine Allen Key set Spanners set	Class room and Press room lab/ industry
LU-3-7 Adjust cylinders impression	<p>The learner will be able to:</p> <ul style="list-style-type: none"> verify plate cylinder packing according to SOPs, verify blanket cylinder packing according to SOPs, verify impression cylinder according to substrate. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> describe type of packing sheets, describe blanket packing according to SOPs, define printing on substrate with correct setting of impression cylinder. 	TH 1 Hrs PR. 8 Hrs	Offset printing Machine Calibrated or packing sheet Tommy set	Class room and Press room lab/ industry
LU-3-8 Perform paper run	<p>The learner will be able to:</p> <ul style="list-style-type: none"> verify smooth travelling of substrate from feeder till delivery section, verify registration of job as per SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define registration verification, describe importance of registration. 	TH 2 Hrs PR. 10 Hrs	Offset printing machine Eyeglass	Class room and Press room lab/ industry

Module D: Perform Print run

Overview: This competency standard will ensure that the learner is competent to perform print run by following the instructions for maintaining balance between ink and water, eliminating dot gain, maintaining registration and controlling ΔE_{on} on offset printing machine.

Duration: Total hours: 40 Theory: 10 Hrs. Practical 30 Hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-4-1 Maintain balance between ink and water.	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • verify print quality on sheet within given intervals, • monitor ink duct with in recommended intervals to keep the print quality sustain, • maintain water level as per machine standard, • verify water temperature of chiller as per standard, • maintain pH value of water as per SOPs, • maintain conductivity value of water as per SOPs, • maintain IPA percentage of water as per SOPs, • verify dampening rollers for normal operations. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • enlist the checking parameters, • define pH, • define conductivity, • define fountain solution and its usage, • define IPA and its usage, • explain dampening setting, • define ink density and its importance. 	TH 4 Hrs PR. 12 Hrs	offset printing machine pH meter Conductivity meter Hygrometer Spanners Allen keys Spectrophotometer Vernier calipers T9-Thermometer	Class room and Press room lab/ industry

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-4-2 Manage dot gain	<p>The learner will be able to:</p> <ul style="list-style-type: none"> perform blanket adjustment as per machine requirement. control water volume during print run for normal printing 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define dot gain, define effects of dot gain on printing, define factors responsible for dot gain. 	TH 2 Hrs PR. 8 Hrs	Offset printing machine Spanners Allen key set Torque wrench/Ratchet	Class room and Press room lab/industry
LU-4-3 Maintain registration	<p>The learner will be able to:</p> <ul style="list-style-type: none"> maintain registration of printed sheets with in recommended intervals, maintain sidelay marks with in recommended intervals, maintain headlay marks with in recommended intervals. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define registration, state purpose of headlay and sidelay marks, State necessity of magnifying glass in registration process. 	TH 2 Hrs PR. 6 Hrs	Offset printing machine Eyeglass	Class room and Press room lab/industry
LU-4-4 Control Delta E values / variation	<p>The learner will be able to:</p> <ul style="list-style-type: none"> record L*A*B values in Log Book, match L*A*B values with in recommended intervals as per specimen, maintain L*A*B values as per specimen, Maintain ink density as per job requirements. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> Describe ΔE, Define L*A*B* values, State importance of maintaining L*A*B values during production. 	TH 2 Hrs PR. 4 Hrs	offset printing Machine Spectrophotometer	Class room and Press room lab/industry

Module E: Perform Post production activities

Overview: This module describes the performance outcomes, skills and knowledge required for an assistant offset machine operator to perform post printing activities. This includes washing of ink roller cleaning, washing printing plates, printing blanket, impression cylinders, dampening rollers and ink knives.

Duration: Total hours: 80 Theory: 10 Hrs. Practical 70 Hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-5-1 Perform ink rollers cleaning	<p>The learner will be able to:</p> <ul style="list-style-type: none"> remove ink residual from machine rollers as per SOP, wash machine rollers as per SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define the importance of roller cleaning, state method of optimising life span of machine rollers, define methods of riskless cleaning. 	TH 2 Hrs PR. 16 Hrs	Offset printing machine Cleaning knife	Class room and Press room lab/ industry
LU-5-2 Wash printing plates	<p>The learner will be able to:</p> <ul style="list-style-type: none"> remove printing plates from machine as per SOP, clean all printing plate with proper plate cleaner, perform printing plate delicate cleaning as per SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define importance of plate cleaning process, state application of CTP plate chemicals, state method of washing ink from conventional plates. 	TH 2 Hrs PR. 12 Hrs	Offset printing machine Spanners set Tommy Set Plate jacket	Class room and Press room lab/ industry
LU-5-3 Wash printing Blanket	<p>The learner will be able to:</p> <ul style="list-style-type: none"> perform blanket wash as per SOP, Verify printing blankets for any 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> define purpose of blanket in printing machine, 	TH 1 Hrs PR. 12Hrs	Offset printing machine	Class room and Press room lab/ industry

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
	damage as per SOP.	<ul style="list-style-type: none"> describe the importance of blanket wash, state procedure of blanket washing. 			
LU-5-4 Clean impression cylinder	The learner will be able to: <ul style="list-style-type: none"> Verify impression cylinder for residual ink, perform impression cylinder wash as per SOP. 	The learner will be able to: <ul style="list-style-type: none"> define the importance of cylinder cleaning, state procedure of impression cylinder cleaning. 	TH 2 Hrs PR. 6 Hrs	Offset printing machine	Class room and Press room lab/ industry
LU-5-5 Wash dampening rollers	The learner will be able to: <ul style="list-style-type: none"> perform dampening roller wash as per SOPs, replace dampening tube from dampening roller as per SOP. 	The learner will be able to: <ul style="list-style-type: none"> State purpose of dampening rollers in printing machine, give purpose of dampening tube, state procedure of dampening roller wash, state procedure of dampening tube change. 	TH 2 Hrs PR. 12 Hrs	Offset printing machine Cleaning brush Scrapper	Class room and Press room lab/ industry
LU-5-6 Perform ink knives cleaning	The learner will be able to: <ul style="list-style-type: none"> perform cleaning with proper knives cleaner, replace knives rubber as per SOPs. 	The learner will be able to: <ul style="list-style-type: none"> describe the important of ink knife cleaning, define the life of knives' rubber. 	TH 1 Hrs PR. 12 Hrs	Offset printing machine Allen key set	Class room and Press room lab/ industry

Module F: Complete Documentation Requirements

Overview: This module identifies the competencies required to develop complete documentation. The individual will be expected to document work time information and maintain printing machine log manually and on computer. This underpinning knowledge regarding computer operation, record keeping inventory system of printing press will be sufficient to provide the basis for quality documentation.

Duration: Total hours: 40 Theory: 20 Hrs. Practical 20 Hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-6-1 Document work time	<p>The learner will be able to:</p> <ul style="list-style-type: none"> record activity span of workday on operation/worksheet, record irregular work hours on operation/worksheet, maintain over time record as per printing press SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> give necessity of work time record keeping. 	TH7 Hrs PR. 7 Hrs	Computer set	Class room and Press room lab/ industry
LU-6-2 Document information	<p>The learner will be able to:</p> <ul style="list-style-type: none"> verify consumables availability through inventory and maintain check sheet, verify availability of desired tools through stock inventory, report stocks consumption according to job, request for material on prescribed indent format, carryout consumed items disposal record in consumable register, 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> describe consumable and non-consumable material, define customer's feedback and its importance. 	TH6 Hrs PR. 6 Hrs	Computer set Inventory books	Class room and Press room lab/ industry

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
	<ul style="list-style-type: none"> record information about customer's feedback as per SOPs. 				
LU-6-3 Maintain machine log	<p>The learner will be able to:</p> <ul style="list-style-type: none"> keep machine log updated as per SOPs, keep production log updated as per SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> give necessity of work time record keeping, describe consumable and non-consumable material, define customer's feedback and its importance. 	TH7 Hrs PR. 7 Hrs	Offset printing machine Computer set Log book.	Class room and Press room lab/industry

Module G: Adhere to Safety Standards and Regulations

Overview: This module identifies the competencies required to apply occupational health and safety procedures at printing press by an Assistant offset machine operator in accordance with the organization's approved guidelines and procedures. Learner will be expected to identify hazards in workplace, comply with health and safety precautions, use of personal protective equipment and practicing safe work habits at workplace at all times. The underpinning knowledge regarding occupational health and safety procedures will be sufficient to provide the basis for printing work.

Duration: Total hours: 45 Theory: 10 Hrs. Practical 35 Hrs.

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-7-1 Identify hazards in printing press environment	<p>The learner will be able to:</p> <ul style="list-style-type: none"> interpret work processes and procedures to identify risk of hazards at printing press, recognize printing processes, tools, equipment and consumable materials that have the potential to cause harm, identify potential hazards to minimize accident risk, take appropriate action to minimize the risk. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> state health and safety precautions of the printing industry list techniques and methods to control risks of identified hazards in the workplace, define procedure of dealing with hazards to reduce chances or avoid accident or injury, state safety reporting procedures. 	<p>TH 2 Hrs</p> <p>PR. 8 Hrs</p>	<p>Health and safety manual</p> <p>Health and safety posters</p> <p>Offset printing machine safety manual</p>	<p>Class room and Press room lab/ industry</p>
LU-7-2 Comply with Occupational Health and Safety (OHS) precautions	<p>The learner will be able to:</p> <ul style="list-style-type: none"> complying with health and safety precautions & relevant 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> state organizational health and safety procedures, list health and safety risks 	<p>TH. 2 Hrs</p> <p>PR. 6 Hrs</p>	<p>Overall combination</p> <p>Safety shoes</p>	<p>Class room and Press room lab/</p>

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
	<p>guidelines,</p> <ul style="list-style-type: none"> • identify OHS hazards in printing press to prevent from potential for accidents, • deal with problems which are within assistant printing machine operator's control, • report safety issues which are out of assistant machine operator's control, • adopt dress code as per printing press SOP. 	<p>that can arise because of accidents,</p> <ul style="list-style-type: none"> • list types of hazards that are most likely to cause harm to health and safety. 		<p>Safety gloves -Goggles Safety helmet Ear plugs Fire extinguisher Smoke alarm First aid box</p>	<p>industry</p>
<p>LU-7-3 Use Personal Protective Equipment(PPE)</p>	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • select personal protective equipment in terms of type and quantity according to work orders, • verify personal protective equipment to ensure optimum protection in compliance with press room procedures, • ensure personal protective equipment hygiene in compliance with press room procedures. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • give importance of using Personal Protective Equipment (PPE) • list Types of PPEs required in printing press. 	<p>TH. 2 Hrs PR. 4 Hrs</p>	<p>Overall combination Safety shoes Safety gloves Goggles Hair cap Ear plugs First aid box</p>	<p>Class room and Press room lab/ industry</p>

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials (Tools & Equipment) Required	Learning Place
LU-7-4 Practice safe work habits to ensure safety in the printing & publishing environment	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • apply dress code in accordance with press room procedures, • follow rules to ensure personal safety as well as safety of others as per press room procedures, • demonstrate housekeeping in the workplace by cleaning up spills or leaks, • keep work area clear from obstructions as per safety policies, • ensure tools or equipment in place prescribed as per company procedures. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • explain importance of safety at work and its implications, • state work safety procedures and guidelines, • list specific company procedures regarding workplace safety, • recommended procedure for cleaning and storing of tools and equipment. 	TH. 2 Hrs PR.5 Hrs	Fire extinguisher Tool box/bins PPEs First aid box	Class room and Press room lab/ industry
LU-7-5 Demonstrate firefighting skills	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • make decision in the process of fighting a fire as per SOPs, • stop fire by applying fire-fighting policies, • apply safety precautions when fighting a fire, • apply the procedures after a fire has been put out as per SOPs. 	<p>The learner will be able to:</p> <ul style="list-style-type: none"> • identify causes of Fire, • list types of fire, • list fire fighting equipment, • define fire fighting method. 	TH. 2 Hrs PR. 12 Hrs	Fire extinguisher	Class room and Press room lab/ industry

4- List of tools (for standard class of 25 learner)**(Annexure – I)**

Sr.	Description	Specification	Quantity
1.	Allen key set	Complete set	4
2.	Calibrated beaker	Standard (when multi-color machine is installed)	4
3.	Calibrated or packing sheet (offset sheets)	As per machine specs	1 Packet (100 sheets)
4.	Cleaning Brush	Regular cloth washing brush	4
5.	Correcting brush	Standard # 3	4
6.	Din cup	Standard 4mm	1
7.	Docket	20"x30" large envelops or Box	20
8.	Dust bin	Large size	6
9.	Eye/magnifying glass	8 TO 10X	8
10.	Fixed spanner set	Complete set	4
11.	Grease gun	With Complete nozzle set	4
12.	Grip pliers	Standard	2
13.	Lock pliers	Set	4
14.	Micro meter	Standard	4
15.	Pliers set	standard complete set of 4 pcs	4
16.	Pre-piling stand	40" heavy duty table	4
17.	Punch set	Complete set	2
18.	Waste bin	2-3 FT Height Blue drums,	4
19.	Ratchet set	Complete set	4
20.	Screw driver set	Complete set	4
21.	Spaggle/ scraper (Chansa)	plastic/ metal	50
22.	Torque wrench	Set	1
23.	Steel ruler	36"	4

24.	Thermometer	Standard to monitor room temperature	2
25.	Tommy Bar	one specific size which usually came with machine	4
26.	Vernier calipers	Standard	4

5- List of machinery & equipment (for standard class of 25 learners)

Sr.	Description	Specifications	Quantity
1.	Computer set with Internet	Desktop 3+Ghz, 3+GB RAM, 17+inch Display , internet	26 Sets
2.	Multimedia set	3000LUM, 6' x 8' foldable screen	01
3.	pH &Conductivity meter	STANDARD- Preferable HANNA	2
5.	Hygrometer	Standard 0-100%	4
6.	Hydro meter/Humidity meter	10 to 95 % RH	2
7.	Light booth	With D50 lights	1
8.	Single offset color printing machine (Heidelberg recommended by NQDC)	GTO 46x52 (size) (with all tools mentioned at Annexure – I) Model 1980 or above With conventional dampening	04
9.	Paper weighing machine	Standard	01
10	Multifunction Printer	A3 size	1
11	Spectrophotometer (Xrite/ Techkon: recommended by NQDC)	ADVANCE SPECS	1