

**NATIONAL VOCATIONAL TRAINING INSTITUTE  
TESTING DIVISION**

**TRADE TESTING REGULATIONS AND SYLLABUS**

**TRADE: GENERAL PRINTING**

**LEVEL : CERTIFICATE ONE**

## TRADE TEST CERTIFICATE ONE

### A. INTRODUCTION

- i. The review of this syllabus has been generally influenced by the demands of industries due to its continuous change as a result of technological advancement and the changing needs of society.

It was also influenced by the TVET reforms under the directions of the new educational reforms with the view to opening up further education and training opportunities to TVET graduates. The certificate ONE syllabus is designed to respond to the following level descriptors:

<b>QUALIFICATION</b>	<b>KNOWLEDGE LEVEL</b>	<b>SKILLS AND ATTITUDE:</b>
Certificate 1	<ol style="list-style-type: none"><li>1. To demonstrate a broad knowledge base incorporating some technical concepts.</li><li>2. To demonstrate knowledge of the theoretical basis of practical skills.</li><li>3. To demonstrate knowledge in numeracy, literacy, IT and Entrepreneurial skills</li></ol>	<ol style="list-style-type: none"><li>1. Require a wide range of technical skills</li><li>2. Are applied in a variety of familiar and complex contexts with minimum supervision.</li><li>3. Require collaboration with others in a team</li></ol>

- ii. This syllabus is aimed at providing knowledge in the safe use of printing tools, equipment, materials and consumables. printing processes, blue print reading, print shop environment, trade drawing, science and calculation.

## **B. GENERAL OBJECTIVES**

On completion of this course, the trainee should be able to apply and understand:

- i) the basic processes in general printing and the safety precautions to be observed
- ii) the correct use and handling of printing tools and equipment
- iii) and know the various types of printing processes e.g offset printing, screen, computer to press, letter-press printing.
- iv. the reading and interpreting of blue print
- v. the basic “printing workshop” working conditions e.g ventilation, drainage system, storage facilities for tools and spare-parts and printing consumables.
- vi. trade drawing, trade science and calculations
- vii. and be able to apply knowledge to establish his/her own work.
- viii. and be able to work in a printing establishment with little supervision

## **C. THE COURSE COMPONENTS**

1. Trade Theory
2. Trade Science and Calculations
3. Trade Drawing
4. General Paper
5. Trade Practical

EXAMINATION: The candidates would be examined in the FIVE components listed in ‘C’ above.

Practical work must be carefully planned to illustrate application of the theory and to provide maximum opportunity for shop practice, laboratory work and demonstration.

## **D. KNOWLEDGE AND SKILLS REQUIREMENT**

The prime objective of the programme is to provide knowledge and skills of the trade in a manner that will best meet the needs of the trade as well as industries using printing equipment.

**E. ENTRY TO THE COURSE**

Minimum education: Must have passed JHS or SHS examination. However, the selection of the students for the course is within the discretion of the head of the institution

**F. ELIGIBILITY FOR ENTRY TO EXAMINATION**

Candidates may enter for examination only as internal candidate; that is those who at the time of entry to the examination are undertaking or have already completed the course at an approved establishment.

**G. EXTERNAL EXAMINERS**

The practical work of candidates will be assessed by an external examiner appointed by the Testing Commissioner.

**H. EXAMINATION RESULTS AND CERTIFICATES**

Each candidate will receive record of performance given the grade for the components taken.

These are:

- i) Distinction
- ii) Credit
- iii) Pass
- iv) Referred/Failure

Certificates would be issued to candidates who would pass all the components.

**I. NOTE:**

All Technical and Vocational trainees who aspire to take advantage of the opportunities opened to them in the educational reforms should NOTE that for a trainee to progress to certificate Two (2) a pass in Certificate One (1) compulsory.

## **J. APPROVAL OF COURSE**

Institutions or other establishments intending to prepare trainees for the Examination must apply to:

THE COMMISSIONER  
TESTING DIVISION  
NVTI HEAD OFFICE  
P. O. BOX MB 21, ACCRA

## **K. ACKNOWLEDGEMENT**

NVTI wishes to acknowledge the team of experts, for preparing the materials which have been incorporated into this syllabus.

Mr. Peter Adjor – (B. Tech)  
Mr. Stephen Agyapong (NCC)  
Mr. Charles O. Amofah (B. Arts).

Government's desire to improve the lot of Technical/Vocational Training, which led to the preparation of this syllabus, is hereby acknowledged.

## **RECOMMENDED TEXT BOOKS**

1. Anatomy of Printing -John Lewis
2. Fundamentals of Modern Photo Composition – J.W. Seybold
3. Revised Basic Printing – P.T. Adjor & Co.

## **TOOLS**

1. Type scale
2. Scissors
3. Cutting knife
4. Bodkin
5. Needle

6. Steel straight rule
7. Bone folder
8. Drawing board
9. Mathematical; set

### **EQUIPMENT**

1. Printing Machinery – Offset
2. Stitchers
3. Guillotine
4. Folding
5. Image setters
6. Computers with Printers
7. Processor
8. Scanner
9. Photocopier
10. Lamination plant
11. Fail Blocker
12. Thermography (Embossing)

**CERTIFICATE ONE – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	INTRODUCTION TO GENERAL PRINTING	The Art of Printing	<ul style="list-style-type: none"> <li>• Types of printing processes</li> <li>• Types of printed products</li> <li>• Books, magazines, newspapers etc.</li> </ul>	Guided approach: Definitions, demonstrations, examples etc.
2.0.	STAGES AND INNOVATIVE DEVELOPMENT IN THE ART OF PRINTING	Printing processes over the years to date	<ul style="list-style-type: none"> <li>• Letterpress printing</li> <li>• Gravure, offset printing/ lithograph</li> <li>• Digital printing</li> </ul>	Demonstration and methodology
3.0	PRE-PRESS	Origination	Measurement, copy preparations, typesetting, imposition, planning darkroom, graphic reproduction	Equipment handling and demonstrations
4.0	PRE-PRESS	Methodology	Font and type measurement, point sizes, accuracy, matter area and margins	Demonstration with trainees participation and teaching aids.
5.0	PRE-PRESS	Originals assembly	Techniques for assembling and method of page assemble etc.	Practical approach
6.0	PRE-PRESS	Planning imposition	<ul style="list-style-type: none"> <li>• Film planning imposition</li> <li>• Different types of imposition</li> <li>• Terminologies of imposition</li> </ul>	Practical approach and trainee participation
7.0	PRE-PRESS	Production Planning	Basic sequence of production From job commencement to print finish	Practical approach and handling
8.0	PRE-PRESS	Originals Reproduction	<ul style="list-style-type: none"> <li>• Appreciate techniques or originals</li> <li>• Well structured typesetting</li> </ul>	Demonstration and guided approach
9.0.	PRE-PRESS	Light sources, transmission systems and image formation	<ol style="list-style-type: none"> <li>i. Graphic reproduction.</li> <li>ii. Scanning in mono and colour separation</li> </ol>	Demonstration and technical approach

**CERTIFICATE ONE – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
10.0	PRESS	Organization and workflow	i. Sequence of machine printing operations for printing processes ii. Daily docket in the press	Demonstration with trainees participation
11.0	PRESS	Health and safety	Good housekeeping, accidents and its causes, report and action, protective clothing, fire prevention, safety colour	Practical approach and handling
12.0	PRESS	Materials	Specification of paper, ISO sizes of paper and boards, ink drying, cover for ink and rollers, blanket and plate, chemicals	Practical approach and trainee participation
13.0	PRESS	Measurement	<ul style="list-style-type: none"> <li>• Measurement of ISO, BSI</li> <li>• Measurements for printing production</li> </ul>	Demonstration and practical handling
14.0	PRESS	Tools and equipment	Tools for machine printing Types of machines for various printing work e.g jobbing, book work, magazine etc.	Practical approach
15.0	PRESS	Machine and Press Design	Limitations, paper flow and delivery systems, linking system.	Demonstration and practicals
16.0	PRESS	Machine Printing	Principles of printing methods: Lithography/offset, relief, intaglio, stencil/screen printing process for colour reproduction	Demonstration and practicals
17.0	POST-PRESS (FINISHING)	Tools and Equipment	<ul style="list-style-type: none"> <li>• Bindery hand tools and brush, needle, folding rod etc.</li> <li>• Hand numbering box</li> <li>• Cleaning and proper storage of hand tools</li> </ul>	Demonstration and practicals

**CERTIFICATE ONE – TRADE THEORY**

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<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
18.0	POST-PRESS (FINISHING)	Materials and Characteristics	Binding materials Types of tapes and sewing thread Height caliper, paper and board	Demonstration with Trainees participation
19.0	POST-PRESS (FINISHING)	Hand folding	<ul style="list-style-type: none"> <li>• Principles of hand folding sheets to sections</li> <li>• The need to press folded sections</li> </ul>	Practicals and trainee participation
20.0	POST-PRESS (FINISHING)	Cutting	<ul style="list-style-type: none"> <li>• Essential parts of a single guillotine</li> <li>• Define clamp pressure, knife height and cutting stick</li> <li>• Operate guillotine to produce cut sheet</li> </ul>	Practicals and trainee participation
21.0	POST-PRESS (FINISHING)	Wire stitching	<ul style="list-style-type: none"> <li>• Handfed wire stitching machine</li> <li>• Simple machine adjustment               <ul style="list-style-type: none"> <li>(i) for thickness of book</li> <li>(ii) changing wire</li> </ul> </li> <li>• Principles of saddled stitching</li> </ul>	Demonstration and practicals
22.0	POST-PRESS (FINISHING)	Adhesive and Perfect Binding	<ul style="list-style-type: none"> <li>• Characteristics of adhesive binding to include simple drawn-on limp cover or flush cutting</li> </ul>	Demonstration and practicals
23.0	PRE-PRESS (FINISHING)	Multi-section books sewn on tapes	<p>Choice of</p> <ul style="list-style-type: none"> <li>i. tape and thread</li> <li>ii. end papers</li> <li>iii. spine linning</li> </ul> <p>Quality control in terms of:</p> <ul style="list-style-type: none"> <li>i. thread tension</li> <li>ii. trimming</li> <li>iii. fit of cover to book</li> <li>iv. simple edge</li> </ul>	Practical, demonstrations and trainee participation

**CERTIFICATE ONE – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
24.0	PRE-PRESS (FINISHING)	Trimming	<ul style="list-style-type: none"> <li>• The reason for trimming book edges. The A,B,C, series of papers and their full sheet size and sub-division</li> <li>• Quality control in terms of cleanliness of cut, trimming marks</li> </ul>	Practicals, demonstration and trainee participation
25.0	PRE-PRESS (FINISHING)	Foil blocking	<ul style="list-style-type: none"> <li>• The relation between heat, pressure and substance</li> <li>• Definition and description of foil blocking</li> <li>• Foil blocking faults</li> <li>• Principles of hand numbering</li> </ul>	Practicals, demonstration and trainee participation
26.0	PRE-PRESS (FINISHING)	Ancillary Operation	Paging, conservative, numbering, sequence of numbering i.e. original	Demonstration and practical

**CERTIFICATE ONE – TRADE SCIENCE AND CALCULATIONS**

<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	TRADE SCIENCE	Units and Measurement	<ul style="list-style-type: none"> <li>• Tolerance related to practical situations</li> <li>• Store S.I. units for physical quantities</li> <li>• Simple measurements and show the error associated with measurement</li> </ul>	Demonstration, discussion and practicals
2.0	TRADE SCIENCE	Relative humidity	The pH scale, acidity and alkalinity, potentials of hydrogen Effects on paper	Demonstration and practicals
3.0	TRADE SCIENCE	Chemistry	<ul style="list-style-type: none"> <li>• Elements and compound</li> <li>• Solution</li> <li>• Acid and alkaline</li> </ul>	Testing, demonstration and discuss Laboratory work
4.0	TRADE SCIENCE	Static electricity	The effect in printing of forces between charged material due to static electricity	Approach with trainee participation
5.0	TRADE SCIENCE	Latent image	<ul style="list-style-type: none"> <li>• Latent image</li> <li>• Appearance and nature</li> <li>• Handling</li> </ul>	Demonstration and practical
6.0	CALCULATION	Finding outs	Full sheets size over finished or working size $\frac{FSS}{FS/WS} = O$	Guide and approach
7.0	CALCULATION	Finding quality required	Full sheet size of paper multiply by finished or working size over outs multiply by sheets in the ream $\frac{QR \times NL/NP}{O \times PP}$	Guided approach
8.0	CALCULATION	A,B,C, series of printing papers	<ol style="list-style-type: none"> <li>Sub-divisions</li> <li>Bigger size divided by two will give first sub-division</li> </ol>	Demonstration with trainee participation

**CERTIFICATE ONE – TRADE SCIENCE AND CALCULATIONS**

<b>TASK</b>		<b>CRITICAL POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
9.0	CALCULATION	Matter and Margin	i. Converting the width of untrimmed paper into picas or centimeter/mm ii. Find one fifth of the depth subtract answer from both depth and width Ratio is 1:2: 1 ½ :3 Head – 1, tail - 2, backs – 1½ fore-edge - 3	Guided approach with Trainee participation
10.0	CALCULATION	Third method refer to fig. AAA1	i. Converting the width of untrimmed paper into picas or centimeter/mm ii. Find one third of the depth subtract answer from depth for jobs like highly classified jobs e.g brochures, magazines etc.	Guided approach with Trainee participation

## **CERTIFICATE ONE – TRADE PRACTICALS**

### **BASICS**

1. Practical Test may vary from Press Houses
2. Consideration should be given to:
  - a) Origination/Paste-Ups
  - b) Film Planning/Imposition
  - c) Graphic Reproduction
  - d) Platemaking
  - e) Bookbinding
  - f) Litho/Offset Printing-Single and colour
  - g) Guillotine
  - h) Quality Control
  - i) Stitching
  - j) Portfolio Build Ups

**CERTIFICATE ONE – TRADE DRAWING**

## **TOOLS**

10. Type scale
11. Scissors
12. Cutting knife
13. Bodkin
14. Needle
15. Steel straight rule
16. Bone folder
17. Drawing board
18. Mathematica; set

## **EQUIPMENT**

13. Printing Machinery – Offset
14. Stitchers
15. Guillotine
16. Folding
17. Image setters
18. Computers with Printers
19. Processor
20. Scanner
21. Photocopier
22. Lamination plant
23. Fail Blocker
24. Thermography (Embossing)

**TEST SPECIFICATION TABLE  
CERTIFICATE ONE – OBJECTIVES**

**BASICS**

<b>ITEM</b>	<b>TOPIC/LEVEL</b>	<b>COGNITIVE KNOWLEDGE</b>	<b>AFFECTIVE UNDERSTANDING</b>	<b>PSYCHOMOTOR APPLICAION</b>		<b>ANALYSIS</b>
1.0.	Origination/Paste Ups	1		4	5	
2.0.	Film Planning/Imposition	1	1	3	5	
3.0.	Graphic Reproduction	1	1	3	5	
4.0.	Platemaking	2	1	2	5	
5.0.	Bookbinding/Other finishing operations	1	1	3	5	
6.0.	Litho/Offset Printing – Single and Colour	2	2	6	10	
7.0.	Guillotine/Stitching	1	1	3	5	
8.0.	Quality Control/Portfolio build ups	2	2	6	10	

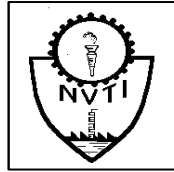
**TEST SPECIFICATION TABLE  
CERTIFICATE ONE – SUBJECTIVES**

**BASICS**

<b>ITEM</b>	<b>TOPIC/LEVEL</b>	<b>COGNITIVE KNOWLEDGE</b>	<b>AFFECTIVE UNDERSTANDING</b>	<b>PSYCHOMOTOR APPLICAION</b>		<b>ANALYSIS</b>
1.0.	Origination/Paste Ups	1	1	3	5	
2.0.	Graphic Reproduction	1	1	3	5	
3.0.	Platemaking	2	1	2	5	
4.0.	Bookbinding/Other finishing operations		1	4	5	
560.	Litho/Offset Printing – Single and Colour	1	1	8	10	
7.0.	Guillotine/Stitching	2	1	2	5	
7.0.	Quality Control/Portfolio build ups	3	1	6	10	

Analysis : This level is to prepare trainees for the Certificate II course.





**NATIONAL VOCATIONAL TRAINING INSTITUTE  
TESTING DIVISION**

**TRADE TESTING REGULATIONS AND SYLLABUS**

**TRADE: GENERAL PRINTING**

**LEVEL : CERTIFICATE TWO**

## A. INTRODUCTION

- i. The review of this syllabus has been generally influenced by the demands of industries due to its continuous change as a result of technological advancement and the changing needs of society.

It was also influenced by the TVET reforms under the directions of the new educational reforms with the view to opening up further education and training opportunities to TVET graduates. The certificate TWO syllabus is designed to respond to the following level descriptors:

<b>QUALIFICATION</b>	<b>KNOWLEDGE LEVEL</b>	<b>SKILLS AND ATTITUDE:</b>
Certificate II	<ol style="list-style-type: none"><li>1. To demonstrate broad knowledge base with substantial depth in area(s) of study.</li><li>2. To demonstrate a command of analytical interpretation of range of data.</li><li>3. To present results of study accurately and reliably.</li></ol>	<ol style="list-style-type: none"><li>1. Needs varied skills and competencies in different tasks under various contexts.</li><li>2. Require a wide range of technical and supervisory skills.</li><li>3. Would be employed in different contexts.</li></ol>

- ii. This syllabus is aimed at providing trainees advanced knowledge in the safe use of printing tools, equipment, materials and consumables. Printing processes, blue print reading, print shop environment, trade drawing, science and calculation.

## **B. GENERAL OBJECTIVES**

On completion of this course, the trainee should be able to::

- i) understand and apply the work in a printing firm with little supervision and to be able to start his own printing enterprise
- ii) understand and apply the work to a prescribed project brief
- iii) understand and apply in-depth knowledge in the sequence of production
- iv) understand and apply in-depth knowledge of pre-press, press and post press processes,
- v) the full colour printing
- vi) understand and apply costing and estimation of a print production
- vii) understand and apply basic maintenance
- viii) detect basic faults in printing process
- ix) understand and apply the working principles of a lithographic/offset machine

## **C. THE COURSE COMPONENTS**

1. Trade Theory
2. Trade Science and Calculations
3. Trade Drawing
4. General Paper
5. Trade Practical

EXAMINATION: The candidates would be examined in the FIVE components listed in 'C' above.

Practical work must be carefully planned to illustrate application of the theory and to provide maximum opportunity for shop practice, laboratory work and demonstration.

## **D. KNOWLEDGE AND SKILLS REQUIREMENT**

The prime objective of the programme is to provide knowledge and skills of the trade in a manner that will best meet the needs of the trade as well as industries using printing equipment.

## **E. ENTRY TO THE COURSE**

Minimum education : Must have passed the Certificate ONE (1) examination.

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**F. ELIGIBILITY FOR ENTRY TO EXAMINATION**

Candidates may enter for examination when he/she has passed the Certificate One (I).

**G. EXTERNAL EXAMINERS**

The practical work of candidates will be assessed by an external examiner appointed by the Testing Commissioner.

**H. EXAMINATION RESULTS AND CERTIFICATES**

Each candidate will receive record of performance given the grade for the components taken.

These are:

- vi) Distinction
- vii) Credit
- viii) Pass
- ix) Referred/Failure

Certificates would be issued to candidates who would pass all the components

**I. NOTE**

All Technical and Vocational trainees who aspire to take advantage of the opportunities opened to them in the educational reforms should NOTE that for a trainee to progress to certificate Two (2) a pass in Certificate One (1) is compulsory.

**J. APPROVAL OF COURSE**

Institutions or other establishments intending to prepare trainees for the Examination must apply to:

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## **RECOMMENDED BOOKS**

1. Anatomy of Printing - John Leweis
2. Fundamentals of Modern Photo Composition - J.W. Seybold
3. Revised Basic Printing – P.T. Adjor & Co.

## **TOOLS**

1. Type scale
2. Scissors
3. Cutting knife
4. Bodkin
5. Needle
6. Steel straight rule
7. Bone folder
8. Drawing board
9. Mathematical; set

## **EQUIPMENT**

10. Printing Machinery – Offset
11. Stitchers
12. Guillotine
13. Folding

14. Image setters
15. Computers with Printers
16. Processor
17. Scanner
18. Photocopier
19. Lamination plant
20. Fail Blocker
21. Thermography (Embossing)

**CERTIFICATE TWO – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0	PRE-PRESS	Typesetting, Scanning and other Typographical Arrangements	<ul style="list-style-type: none"> <li>• Typesetting</li> <li>• Division of words, indepth knowledge in Measurement, symbolism of colours, dummy making, <i>tumb</i>-nails, symmetrical and a-symmetrical arrangements, appreciation of optical centre</li> </ul>	Practicals and Demonstration with trainee participation
2.0.	PRE-PRESS	Image Setting and “Processor” Functions	<ul style="list-style-type: none"> <li>• Final typesetted document to go through the image setting procedure to break full colour down into CMYK latent image film.</li> <li>• The “processor” makes use of the developer and the fixer to turn the image into a positive film ready for exposure</li> </ul>	Practicals and Demonstration with trainee participation
3.0.	PRE-PRESS	Darkroom Operations	<ul style="list-style-type: none"> <li>• Burning of plates</li> <li>• Positive films for positive plates</li> <li>• Negative films for negative plates</li> </ul> <p>CHEMICALS: Negative for negative plates and positive chemical for positive plates. “Preserver for preserving plates</p>	Practicals and Demonstration with trainee participation
4.0.	PRESS	Multicolour Printing	<ul style="list-style-type: none"> <li>• Four plates for full colour print.</li> </ul>	Practicals and

			CMYK <ul style="list-style-type: none"> <li>• Registration</li> <li>• Checking positing CMYK</li> <li>• Ink balancing</li> <li>• Avoiding scumming</li> <li>• Observe set-offs</li> <li>• Catch-up</li> </ul>	Demonstration with trainee participation
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**CERTIFICATE TWO – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
5.0.	PRESS	Components of the Lithographical Machine	<ul style="list-style-type: none"> <li>• Five area: Plate cylinder, blanket cylinder, impression cylinder, damping system, inking system</li> <li>• Lubrication; powder spraying, grippers, layers, feed, delivery, compressor, fountain tray, rollers i.e. forme rollers transfer rollers, vibrator rollers, duct roller etc.</li> </ul>	Demonstration and Guided Approach
6.0.	PRESS	Substrate Transport and Control	Infeed, printing, delivery tray, sorting and packing, dispatch	Demonstration and Practical
7.0.	PRESS	Types of Substrates	<ul style="list-style-type: none"> <li>• Paper, boards, plastics,</li> <li>• Commonly used substrate: Newsprint, art card vanguard bond, chromo-cote, imitation art etc.</li> </ul>	Demonstration and visit to paper house
8.0.	PRESS	Washing up	Gum up plate, remove ink from duct. Remove dampers, clean ink rollers, dots, slap knives, clean blankets, impression, plates cylinders, clean bearers, remove plate and packing etc.	Practicals and Demonstration with trainee participation
9.0	PRESS	Lubrication	Daily lubrication, Weekly lubrication Monthly lubrication	Practicals and Demonstration with trainee participation

			Central lubrication by pump capillary feed, roller bearings, gripper assemblies, delivery chain, jogger mechanism etc.	
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**CERTIFICATE TWO - TRADE THEORY**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
10.0	Press	Common Printing Faults	Sheets failing to separate and feed, mis-register, non-drying of ink film, set-off, picking and plucking, tail end book, slur, paper stretch, fluffy, roller repeat and ghosting, bleeding, catch-up, scumming.	Practicals and Demonstration with trainee participation
11.0	Press	Efficient Single Colour Printing	<ul style="list-style-type: none"> <li>• Job instructions</li> <li>• Set paper transport</li> <li>• Fit and position plates and packing</li> <li>• Fit dampers</li> <li>• Fit fountain solution</li> <li>• Set inking system</li> <li>• Prepare plate for printing, prepare waste sheets, run job</li> </ul>	Practical and Demonstration With trainee participation
12.0	Press	Machine Hazards	Distraction, loose clothing and jewellery, lifting heavy weights, noise, smoking, eating and drinking	Approach
13.0	Post Press (Finishing)	Signatures and Reference Marks	<ul style="list-style-type: none"> <li>• Back step methods, small capitals method, figures at the foot of the first page at the section in book work.</li> <li>• Reference marks, asteric, dagger, double dagger, section, parallel, paragraph</li> </ul>	Demonstration and Practical
14.0	Post Press (Finishing)	Types of Binding	<ul style="list-style-type: none"> <li>• Case binding, half binding,</li> </ul>	Demonstration and Practical



			three-quarter binding, comb binding, perfect spiral, adhesive, mechanical binding, edition binding (hard cover), multi-section, sewing	
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**CERTIFICATE TWO – TRADE THEORY**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
15.0	POST PRESS (FINISHING)	Materials and their Characteristics	<ul style="list-style-type: none"> <li>• Main types of adhesives</li> <li>• Warping occurren</li> <li>• Steps to minimize warping</li> <li>• Main categories of binders boards.</li> <li>• Woven non-woven, plastic covering materials, etc.</li> </ul>	Demonstration with trainee participation
16.0	POST PRESS (FINISHING)	Hand folding	<ul style="list-style-type: none"> <li>• Parts of a book: preliminaries text matter, additional</li> <li>• Principles of hand folding stitch to sections</li> <li>• Split edges of the sections when folding</li> <li>• Press folded sections</li> <li>• Imposition schemes of 16 pages upwards</li> </ul>	Demonstration with trainee participation
17.0	POST PRESS (FINISHING)	Cutting	<ul style="list-style-type: none"> <li>• Essential parts of knife of guillotine</li> <li>• Mechanical and electronic guard of the guillotine</li> <li>• Clamp pressure, knife height, cutting stick.</li> </ul>	Demonstration and Practicals
18.0	POST PRESS	Wire Stitching	<ul style="list-style-type: none"> <li>• Essential parts of hand-fed wire</li> </ul>	Demonstration and Practicals

	(FINISHING)		<p>machine</p> <ul style="list-style-type: none"> <li>Working principles of hand-fed wire stitching machine</li> </ul> <p>Principles of saddle stitching, side stitching, determination of wire gauge, checking thickness of a book</p>	
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**CERTIFICATE TWO - TRADE THEORY**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
19.0	POST PRESS (FINISHING)	Multi-Section Book Sewn on Tapes	Construction of stationery notebook, simple edition case binding, choice of tape and thread, spine lining, boards, covering materials, trimming, fit of cover to book	Practicals and demonstration with trainee participation
20.0	POST PRESS (FINISHING)	Trimming	<ul style="list-style-type: none"> <li>Reason for trimming book edges in the correct sequence</li> <li>Common metric books sizes</li> <li>Quality control in terms of squareness, final size, cleanliness of cut, trimming marks</li> </ul>	Practicals and demonstration with trainee participation
21.0	POST PRESS (FINISHING)	Machine Folding	<ul style="list-style-type: none"> <li>Folding up to 16 pages upwards</li> <li>Portrait and landscape,</li> <li>Passing sheet for folding</li> <li>Description of the principles of buckled fold, knife fold, perforating, splitting</li> <li>Quality control in terms of acceptable products</li> </ul>	Practicals and demonstration with trainee participation

**CERTIFICATE TWO – TRADE SCIENCE AND CALCULATION**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
1.0.	SCIENCE AND CALCULATION	Heat and Humidity	<ul style="list-style-type: none"> <li>• Various problems caused by changes in temperature and relative humidity</li> <li>• Define relative humidity and how it is measured on the pH scale</li> <li>• The hydrometer</li> <li>• Effect on printing papers (indepth)</li> </ul>	Demonstration and Practicals
2.0.	SCIENCE AND CALCULATION	Static Electricity	<ul style="list-style-type: none"> <li>• Effect in printing of forces between charged materials and the resulting difficulties (indepth)</li> <li>• Static electricity as a fire hazard</li> <li>• Principles of static elimination</li> <li>• Attraction and repulsion of paper and plastics due to static electricity</li> </ul>	Practicals and Demonstration
3.0.	SCIENCE	Light and Colour	<ul style="list-style-type: none"> <li>• Definition of transmission, opacity, density</li> </ul>	<p>Guided approach and Trainee participation</p> <p>Solve problems by use of Transmission, opacity, density And reflect tanks</p>
4.0.	SCIENCE	Identification of Latent Image	<ul style="list-style-type: none"> <li>• Identification of latent images of film</li> <li>• Proper handling of latent image films,</li> <li>• Proper storage of films and plates</li> <li>• Correct procedure of handling and processing latent</li> <li>• Films into positive films</li> </ul>	Demonstration and Practicals

**CERTIFICATE TWO – TRADE SCIENCE AND CALCULATION**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
5.0.	CALCULATION	Chemistry of Developers	Developer A. Developer B mix-up proportional for a base Fixer, water, positive plate developer, negative plate developer Developing areas should be devoid of light	Practical and Demonstration With trainee participation
6.0.	CALCULATIONS	Handling of Chemicals	Proper storage procedure Chemicals should be store away from extreme light/warm conditions Spill-over to be cleaned with water immediately after handling chemicals Personal safety and hygiene	Practical and Demonstration With trainee participation
7.0	CALCULATIONS	Costing and Estimating	Finding outs, find quantity of paper required, cost charges for pre-press, press, post press and overheads	Demonstration and Practicals
8.0	CALCULATIONS	Sections	Calculate the number of sections of 16 pages job that can be found in a job of 2,000 pages given, the remainder as a section or otherwise	Demonstration and Practicals
9.0	CALCULATION	Paper calculation	With the information provided find the number of sheets or reams required for a job. <ul style="list-style-type: none"> <li>• Quantity required</li> <li>• Number of leaves/pages</li> <li>• Full sheet size</li> <li>• Job size</li> <li>• Sheets to a ream</li> <li>• Otherwise - examples</li> </ul>	Demonstration and approach

**CERTIFICATE TWO – TRADE SCIENCE AND CALCULATION**

<b>TASK</b>		<b>CRITICAL-POINTS</b>	<b>SUB-POINTS</b>	<b>INSTRUCTIONAL TECHNIQUES</b>
10.0	CALCULATION	Paper size for bookwork Job = 7½” x 10” Find the matter area and margins for the following: Heads Tails Backs Fore-edges Use the 5 <sup>th</sup> and 3 <sup>rd</sup> METHOD Also the ratio 1:2:1½ :3 Give more examples	Using the third and fifth method	Guided Approach
11.0	CALCULATION	A job consist of 16 paper for a section. Calculate the number of section that will constitute 400 pages.  Give more examples	Paper and pages calculation	Practical demonstration Trainees Participation
12.0	CALCULATION	Calculate the number of A4 papers to be obtained from 100 sheets of “AO’ size sheets	If 1 “AO” sheet size gives us 8 “A4” papers, therefore 100 “AO” size sheets should give what?	Practical demonstration Trainees Participation

## CERTIFICATE TWO – TRADE DRAWING

TASK		CRITICAL-POINTS	SUB-POINTS	INSTRUCTIONAL TECHNIQUES
1.0.	TRADE DRAWING	Sketch 16 pages lithographic portrait imposition. Name all parts. Otherwise - examples	<ul style="list-style-type: none"> <li>• 16 pages upwards impositions</li> <li>• Saddle and stab stitching</li> <li>• Sheet work</li> <li>• Work and turn</li> <li>• Head, tail, backs, fore-edge, gutter</li> </ul>	Demonstration and Practicals
2.0	TRADE DRAWING	Sketch 16 pages lithographic landscape imposition. Name all parts Otherwise – examples	<ul style="list-style-type: none"> <li>• 16 pages upwards impositions</li> <li>• Saddle and stab stitching</li> <li>• Sheet work</li> <li>• Work and turn</li> <li>• Head, tail, backs fore-edge, gutter</li> </ul>	Demonstration and Practical
3.0.	TRADE DRAWING	Sketch 12 pages job as 8 pages inserted in 4 pages. Name all parts. Otherwise - examples	8 pages separate imposition 4 pages separate imposition Head, tail, backs, fore-edge	Demonstration and practical
4.0.	TRADE DRAWING	Illustrate the plate cylinder and impression cylinder	Main parts Main parts	Demonstration and Practicals
5.0	TRADE DRAWING	Draw a simple relief letter-press forme	Letterpress	Demonstration and guided approach
6.0	TRADE DRAWING	Draw a simple intaglio forme	Intaglio	Demonstration guided approach
7.0.	TRADE DRAWING	Sketch proof-readers symbols and their meaning	Understand proofreading and mark-proof	Demonstration and approach

## **CERTIFICATE TWO – PRACTICALS**

### **ADVANCED**

1. Practical Test may vary from Press House
2. Consideration should be given to:
  - a) Origination/Paste Ups
  - b) Film Planning/Imposition
  - c) Graphic Reproduction
  - d) Platemaking
  - e) Bookbinding
  - f) Litho/Offset Printing-single and colour
  - g) Guillotine
  - h) Stitching
  - i) Quality control
  - j) Portfolio Build ups

**CERTIFICATE TWO – TRADE PRACTICAL**



**TEST SPECIFICATION TABLE  
CERTIFICATE TWO – OBJECTIVES**

**INDEPTH**

<b>ITEM</b>	<b>TOPIC/LEVEL</b>	<b>COGNITIVE/ KNOWLEDGE</b>	<b>AFFECTIVE/ UNDERSTANDING</b>	<b>PSYCHOMOTOR/ APPLICAION</b>		<b>ANALYSIS</b>
1.0.	Origination/Paste Ups	1	1	3	5	
2.0.	Film Planning/Imposition		2	3	5	
3.0.	Graphic Reproduction		1	4	5	
4.0.	Plate making	1	1	3	5	
5.0.	Bookbinding/Other finishing operations	2	1	2	5	
6.0.	Litho/Offset Printing – Single and Colour	2	2	6	10	
7.0.	Guillotine/Stitching	1	1	3	5	
8.0.	Quality Control/Portfolio build ups	1	1	8	10	

Analysis: To upgrade skills learnt in Certificate I.

More questions have been allocated to the psychomotor level because trainees need hands-on experience to be able to meet conditions on the market

**TEST SPECIFICATION TABLE  
CERTIFICATE TWO – SUBJECTIVES**

**INDEPTH**

<b>ITEM</b>	<b>TOPIC/LEVEL</b>	<b>COGNITIVE/ KNOWLEDGE</b>	<b>AFFECTIVE/ UNDERSTANDING</b>	<b>PSYCHOMOTOR/ APPLICAION</b>		<b>ANALYSIS</b>
1.0.	Origination/Paste Ups	1	1	3	5	
2.0.	Film Planning/Imposition	1		4	5	
3.0.	Graphic Reproduction	2	1	2	5	
4.0.	Platemaking	1	1	3	5	
5.0.	Bookbinding/Other finishing operations	2	1	2	5	
6.0.	Litho/Offset Printing – Single and Colour	1		4	5	
7.0.	Guillotine/Stitching	2	1	2	5	
8.0.	Quality Control/Portfolio build ups	1		4	5	