National Occupational Standards

Sector: Press Process: Offset Lithography

Occupation: Press Machine Operator

MQF Level: 2

Units:

- PMO201 Improve individual performance at work.
- PMO202 Contribute to maintaining equipment in working order.
- PMO203 Possess good knowledge on printing materials; pre-press and post-press processes.
- PMO204 Possess good knowledge on printing plates and inks.
- PMO205 Prepare 1- or 2-unit sheet-fed offset lithographic machines.
- PMO206 Operate 1- or 2-unit sheet-fed offset lithographic machines.
In order compete successfully, printing companies need to be constantly vigilant on their quality as well as to keep up to date with technology and best practice. One of the ways in which organisations improve is by helping their people to acquire new skills and knowledge either individually or as part of a team.

Performance Criteria
The candidate must have the necessary knowledge and skills to:
1. Communicate with work colleagues for self-improvement.
2. Work and communicate effectively with customers for their satisfaction.
3. Share responsibility with superiors to review and prepare personal development plans.

Required Knowledge

The Level 2 Offset litho machine operator must know and state:
1. Communication procedures and principles of personal development planning and training.
2. Workplace policy & practice:
   a. Workplace objectives, priorities, standards & procedures;
   b. The range of work carried out in the workplace;
   c. The working practices existing in the workplace;
   d. The key job roles within the printing and graphic industry and their main purposes.
3. The identification and assessment of printing options:
   a. The reasons for selecting one process over another;
   b. The main stages in the printing process from pre-press to finished product.
4. The principles of personal development planning and training.
5. The different types of resources, including materials, machinery, etc.

Required Skills

The Level 2 Offset litho machine operator is able to follow instructions to:
1. Review the current situation through advice from colleagues and managers at work or from customers.
2. Develop an action plan to improve own skills and knowledge:
   a. Seek constructive feedback from others, including manager/trainer, colleagues and customers on how own performance at work can be improved;
   b. Respect feedback and plan improvements to own skills and knowledge which are specific and achievable;
   c. Periodically, with the help of a manager/ trainer, evaluate the progress made toward the
entire plan and update or renews the action plan as appropriate.

d. Identify the way in which own service could have been improved and where it could have provided in a better service.
PMA202 - Contributes to maintaining equipment in working order.

The candidate must show that all of the statements in each element have been covered and must be the result of real work activities in actual production situations.

Performance Criteria
The candidate has the necessary skills and knowledge to:
1. Maintain equipment in working order.
2. Note and report the components that need replacing, whether they are machine parts or consumables, depending on the job's responsibilities.

Required Knowledge
The Level 2 Offset litho machine operator must know and state:
1. The risks of handling machinery, cleaning materials and lubricants.
2. Own responsibilities for cleaning machines - what is permitted and what is not.
3. The company's requirements and industry guidelines for the safe handling and use of hazardous substances.
4. The production schedule and how this affects cleaning operations.
5. The importance to use cleaning methods that are safe, avoid harming the environment and meet manufacturers' requirements.
6. The company's procedures for the safe disposal of waste.
7. Responsibilities for replacing consumables - what is permitted and what is not.
8. The maintenance plan for the machine.
10. Responsibilities for replacing components - what is allowed and what is not.
11. Kinds of faults one is likely to find in the equipment and what to do about them.
12. The reporting procedures of unexpected wear, damage or machine faults.

Required Skills
The Level 2 Offset litho machine operator must follow instructions to:
1. Clean own equipment:
   a. Switch off the machinery and/or use the appropriate safety precautions before
cleaning it;

b. Use the appropriate cleaning equipment and materials for the machine;

c. Use cleaning methods that are safe, avoid harm to the environment and which follow
the manufacturer's instructions.

d. Clean and lubricate the machines at the indicated times.

e. Dispose of used cleaning agents and waste materials (cleaning agents, solvents and
lubricant, production debris, and soiled materials) safely.

2. Update records of machine maintenance.

3. Routinely examine machinery for defective components or excessive wear.

4. Identify machine components that need replacing.

5. Assist in removing and replacing machine components using safe and approved methods.

6. Restore machine to safe operating condition after replacing components.

7. Keep accurate records of the components removed and replaced.
PMA203 – Possess good knowledge or printing materials; pre-press and post-press processes

The candidate must show that all of the statements in each element have been covered and must be the result of real work activities in actual production situations.

Performance Criteria
The candidate must have the necessary knowledge and skills to:

1. Understand the different type of modern communication technologies.
2. Distinguish between different types of printing substrates and the differences in paper.
3. Comply with the processing line from pre-press to post-press on the company.

Required Knowledge

Level 2 Offset litho machine operator must know and state:

1. The technologies available to convey information.
2. The ability of the printing industry to use different media to convey data or information.
3. The different printing substrates available.
5. Paper surfaces and physical qualities.
6. The production processes available within the company and the sequence of work from pre-press and to post-press.

Required Skills

The Level 2 Offset litho machine operator is able to follow instructions to:

1. Understand the different forms of communication technologies (print, electronic and multi-media).
2. Distinguish between the different types of print media used.
3. Distinguish between the range of printing substrates available for printing.
4. Address problems that could arise in offset litho and post-press production from the quality of paper.
5. Relate to the processing line from pre-press to post-press in the company.
6. Ensure that outputted work is according to specifications for post-press processes.
**PMA204 – Possess good knowledge on printing plates and inks**

The candidate must show that all of the statements in each element have been covered and must be the result of real work activities in actual production situations.

**Performance Criteria**
The candidate has the necessary skills and knowledge to:

1. Prepare the appropriate tools and equipments (eg: plates and inks) for printing
2. Ensure that all the necessary tools and equipments (eg: plates and inks) are in working order before printing.

**Required Knowledge**

**Level 2 Offset litho machine operator must know and state:**

1. The function of image and non-image areas.
2. Safe light requirements.
3. Risks plates are liable to during storage and how to protect plates.
4. Commonly occurring faults in plates, how they are recognised and what action is to be taken.
5. Company's procedures for obtaining the materials needed for a job.
6. The types of ink and varnishes used in own company.
7. The standard process and spot colours range and the ink matching system.
8. How to estimate and measure ink quantities.
9. The compatibility of inks with substrate and the plate where applicable.
10. Risks of handling materials.
11. The safe handling of inks, solvents and varnishes, and what to do when there are spillages or contamination.
12. Applicable technical and Health & Safety data sheets.
13. Company's procedures for the safe handling, storage and disposal of inks, solvents and varnishes.
14. The importance to prevent environmental harm when disposing of stock no longer required.
15. Ink and varnish drying requirements for different paper substrates

**Required Skills**

**Level 2 Offset litho machine operator must follow instructions to:**

1. Identify between image and non-image areas of the plates and the interaction of these with the damping solution and ink.
2. Protect and store plates prior to printing:
   a. handle plates carefully so that damage does not occur;
   b. check that the conditions are suitable for storing plates in terms of light, heat, humidity and cleanliness;
   c. store plates at the press side under the conditions approved by the company;
   d. keep the storage area at the safe light level, so that the plates do not deteriorate;

3. Retrieve plates for printing:
   a. to examine the plates under approved lighting conditions;
   b. select and carefully check that the plates have the correct images and colour(s) for the job;
   c. thoroughly check that the plate’s processing and quality of image meet production’s requirements;
   d. clean the plates, using approved methods and materials so that they are fit for production work;
   e. use approved methods and materials to make any modifications which it is his job to make;
   f. identify and report to the appropriate person any modifications outside own responsibility.

4. Check that there are enough materials of the right type for the job.

5. Maintain batch-to-batch consistency within the tolerance level by own company.

6. Produce the number of batches required in time to meet production needs.

7. Handle inks, solvents and varnishes safely

8. Check, through correctly using an approved test, that the mix meets the specification.

9. Produce the sample with the minimum of wastage.

10. Clearly and correctly mark the container and store inks in accordance with own company’s procedures.

11. Store inks, solvents and varnishes in the approved containers and in conditions that minimise deterioration in quality.

12. Keep storage areas safe to use and easy to access

13. Dispose of any stock that is no longer fit for purpose, safely and in a way that avoids harm to the environment.

14. Understand the influence of ink additives as well as to pH buffering, alcohol and other additives to the water dampening solution on surface tensions and ink drying time.
PMA205 – Prepare sheet-fed offset-lithographic machines

The candidate must show that all of the statements in each element have been covered and must be the result of real work activities in actual production situations.

Performance Criteria
The candidate is required to have the necessary skills and knowledge to:
1. Set the feeder, transport and delivery sections
2. Fit the plats for printing
3. Identify and report mechanical faults

Required Knowledge
Level 2 Offset litho machine operator must know and state:
1. The principles of sheet-fed offset lithographic printing.
2. Details and requirements of the job.
3. The setting up of the paper feeding, transport and delivery systems.
4. How to test the feeding, transport and delivery systems for different types of paper stocks.
5. The fitting of plates, blankets and rollers.
6. The setting up of inline auxiliary equipment.
7. The commonly occurring faults with paper transports, inline auxiliary equipment, plates, blankets and rollers – what causes them and how to prevent them
8. The risks associated with preparing transports, inline auxiliary equipment and fitting plates, blankets and rollers and how to avoid them.
9. The company’s reporting procedures and sources of advice
10. The safe operation of printing machinery and emergency shut down procedures.
11. The company’s reporting procedures and sources of advice.

Required Skills
Level 2 Offset litho machine operator is able to follow instructions to:
1. Check the readiness/availability of paper and plates for the job.
2. Identify the job details either from the job instructions or from a sample of the job.
3. Set the paper transports for different type of paper stocks so that:
   a. the job stock is loaded, fed and forwarded without misses or doubles and in register control;
   b. the transport operates safely and efficiently at the required running speed;
   c. sheets are delivered squarely and form an even pile.
4. Report promptly problems either relating to mechanical faults or material supply.
5. Check the absence of risks and take all the precautions necessary to prevent injury whilst setting the paper transports or fitting plates.
6. Ensure that the machine and work are safe and ready for production and stop the machine in an emergency situation.
7. Regularly check that the blankets, inking and damping rollers are in working condition and set to the correct pressure specifications.
8. Regularly check that the machine is clean enough to prevent marking or damage to the product during operation.
9. Regularly clean components and equipment.
10. Ensure that all guards are correctly fitted, that none of the safety barriers have been compromised and that the machine is safe to operate.
11. Maintain a list of consumables that are likely to identify those parts that may be required at short notice.
12. Identify the person(s) who are able to advise on the job requirements and report back according to company’s procedures.
### PMA206 – Operate sheet-fed offset-lithographic machines

**Performance Criteria**

The candidate must show that all of the statements in each element have been covered and must be the result of real work activities in actual production situations.

#### Required Knowledge

**Level 2 Offset litho machine operator must know and state:**

1. The production procedures to start a job and the details for the job.
2. The materials and consumables needed to run a job.
3. The units on the machine, their purpose and the settings required for the job.
4. The company’s quality standards for printing work.
5. The commonly set-up and running faults on the various units of the machine being used – what causes them and how to prevent or correct them.
6. The requirements of other processes that follow the printing process.
7. The risks associated in operating sheet-fed offset lithographic printing machines and how to avoid them.
8. The safe operation of printing machinery and emergency shut down procedures.
9. The company’s reporting procedures and sources of advice.
10. The procedures for the removal of waste from machine.

#### Required Skills

**Level 2 Offset litho machine operator is able to follow instructions to:**

1. Start the job and check the details needed for the job.
2. Keep up the supply of sufficient paper, ink, fountain solution and other consumables throughout the run and promptly report to management if the materials provided are not correct or sufficient.
3. Run the offset litho machine at the required speed, safely and efficiently to produce work containing text only.
4. Obtain approval for the pass sheet.
5. Regularly check that the quality standards are maintained and test quality output either visually, by touch or electronically aided;
6. Identify problems by examining materials supplied; examining printed output; checking machine settings and checking the condition and operation of the machine.
7. Stack work safely using the approved method.
8. Promptly report any shortfalls in production or report problems in maintaining image quality.


10. Forward work to the next state of the process without damage.

11. Accurately identify faults which:
    a. affect the quality of the image;
    b. produce shortfall in output;
    c. create risks to health and safety.