

1 Module Details

Module Name

Photocopier Operating Principles

Nominal duration

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 72 to 80 hours.

Module code

NUE115

Discipline code

0703230

2 Module purpose

This module will provide students with the knowledge and skills to undertake basic maintenance of photocopiers.

3 Prerequisites

NUE052 Applied Electricity 1

4 Relationship to competency standards

This module provides some of the knowledge and skills underpinning competency in the following standards: National Electrotechnology Industry Standards, Units NES009 NES106, NES206, NES301, NES402, NES501, and the relevant specialisation. Metals & Engineering Industry Standards, Units 5.1A, 18.57A

5 Content

1. Photocopiers
 - General operating processes
 - Block diagram
 - Operation of the major functional blocks
 - Use of service manual
2. Copy processes - Analogue photocopier
 - image scanning process
 - development process
 - transfer process
 - cleaning process
 - fusing process
 - process control/compensation techniques
3. Copy process - Digital photocopier
 - image scanning process
 - image capture process
 - image storage techniques
 - image manipulation process
 - Comparison of digital and analogue photocopiers
4. Paper feed and transportation
 - Paper types
 - Paper handling
 - Methods of paper feed
 - Paper transportation
5. Maintenance procedures
 - Photocopier adjustment for correct operation
 - Replacement of consumable items
 - Cleaning procedures

6 Assessment strategy

Assessment methods

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Normally learning and assessment will take place in a classroom/laboratory environment.

7 Learning Outcome Details

Learning Outcome 1

Describe the general operation of photocopiers

Assessment criteria

- 1.1 Outline the general operating processes involved in a photocopier
- 1.2 Identify major functional parts from a photocopier's service manual.
- 1.3 Sketch a block diagram showing the major functional blocks in a photocopier
- 1.4 Describe the purpose or detailed operation of the major functional blocks in a photocopier

Learning Outcome 2

Describe the paper feed and transportation.

Assessment criteria

- 2.1 Describe the paper handling in a basic photocopier.
- 2.2 List and describe paper feed methods.
- 2.3 Describe the registration process.
- 2.4 List common problems caused during paper transportation.
- 2.5 Describe basic maintenance procedures used in the paper transport system.

Learning Outcome 3

Describe the photocopy process for an analogue photocopier and demonstrate the ability to disassemble and reassemble the major components of a typical photocopier.

Assessment criteria

- 3.1 Describe the detailed copy process in a lens light machine.
- 3.2 Describe the optical image scanning process in a lens light machine.
- 3.3 Describe the function and operation of development, transfer, cleaning and fusing processes in a typical analogue photocopier.
- 3.4 Describe the process control/compensation techniques for a typical analogue photocopier.
- 3.5 Disassemble and reassemble major components of a photocopy machine.

Learning Outcome 4	Describe the photocopy process for a digital photocopier.
Assessment criteria	<p>4.1 Describe the image scanning process in a digital photocopier.</p> <p>4.2 Describe the image capture process for both flat-bed and CCD scanning.</p> <p>4.3 Describe the black and white reference system.</p> <p>4.4 Describe image storage techniques used in a digital photocopier.</p> <p>4.5 Describe the image manipulation process.</p> <p>4.6 Describe the xerographic process of writing the image to the drum/belt.</p> <p>4.7 State that development, transfer, cleaning and fusing processes are identical to analogue machines.</p> <p>4.8 State that the process control/compensation techniques are identical to analogue machines.</p>
Learning Outcome 5	Demonstrate routine maintenance of a typical photocopier.
Assessment criteria	<p>5.1 Adjust the photocopiers paper path and copy quality.</p> <p>5.2 Adjust the machine for correct operation.</p> <p>5.3 Replace consumable items</p> <p>5.4 Clean the copier both internally and externally.</p> <p>5.5 List the potentially harmful emissions from an operating photocopier.</p> <p>5.6 State the characteristics of different types of photocopy paper.</p> <p>5.7 Describe problems caused by weight, dust, humidity, milling texture.</p>
8 Delivery of the module	
Delivery strategy	Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective way to achieve this is by the integration of theory and practice where students learn by experimentation and through research and laboratory reports. It is recommended that learning and assessment be facilitated in a holistic manner, which may require a learning outcome sequence other than that indicated in the module.
Resource requirements	<p>Resources should be sufficient for students to carry out practical exercises on an individual basis. This will require a range of photocopiers and consumables.</p> <p>Useful references include a range of manufacturers operational and maintenance manuals for business machines.</p>
Occupational health and safety requirements	A safe and healthy environment will be provided for students and teachers as well as safety procedures followed with

| regard to teaching/learning activities.