



Republic of Rwanda
Ministry of Education



RTB | RWANDA
TVET BOARD

ARTWORK PRINTING

PFAPA401

Print an Artwork

Competence

RQF Level: 4

Learning Hours



Credits: 4

Sector: Arts and Crafts

Trade: Plastic and Fine Arts

Module Type: **SPECIFIC**

Curriculum: ARCPFA4001- TVET Certificate 4 in Plastic and Fine Arts

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KIGALI, May 2023

Purpose statement	This module describes knowledge, skills and attitude required to print an artwork. At the end of the module, the learner will be able to prepare the work of printing, make a design and to finish the work.					
Learning assumed to be in place						
Delivery modality	Training delivery		100%	Assessment		Total 100%
	Theoretical content		30%	Formative assessment	30%	50%
	Practical work:		70%		70%	
	• Group work and presentation	30%				
	• Individual work	40%				
			Summative Assessment		50%	

Elements of Competency and Performance Criteria

Elements of competency	Performance criteria
1. Prepare the printing work	1.1. Items to be printed are properly identified according to their uses.
	1.2. Tools materials are adequately selected referring to the basic printing techniques.
	1.3. Tools and materials are properly prepared depending on printing methods.
	1.4. The workplace is properly prepared based on healthy safety, security and environmental standards.
2. Make a design	2.1. Drafts are properly made based on design process.
	2.2. The sample is effectively developed according to the composition rules.
	2.3. The design is adequately finalized referring to analogue techniques of printing.
3. Perform printing	3.1. The surface is appropriately prepared referring to the printing techniques.

	3.2. The artwork is properly reproduced based on printing procedures.
	3.3. The work is appropriately finished according to the finishing techniques.

Knowledge	Skills	Attitude
ESSENTIAL KNOWLEDGE ✓ Identify the theme ✓ Gather artistic drawing references ✓ Enumerate art principles ✓ Differentiate types of artistic drawing ✓	ESSENTIAL SKILLS ✓ Prepare a workplace ✓ Prepare tools, materials and equipment ✓ Apply SHE at workplace ✓ Apply rules of composition ✓ Apply principles of art in drawing ✓ Enlarge the drawing ✓ Define light ✓ Protect the drawing ✓ Frame the picture ✓ Package the drawing	WORKER BEHAVIOUR/ATTITUDES ✓ Use creativity and innovation throughout the design works ✓ Pay attention to design projects details ✓ Demonstrate punctuality during the implementation of the design project ✓ Demonstrate resourcefulness in the new design trends

Course content

Learning outcomes	At the end of this module, the learner will be able to: 1. Prepare the work 2. Make a design 3. Finish the work
Learning outcome 1: Prepare the work	Learning hours: 10
Indicative content	

- **Identification of printable items**
 - ✓ Books
 - ✓ Business cards
 - ✓ Brochures
 - ✓ Coupons
 - ✓ Flyers
 - ✓ Billboards
 - ✓ Banners
 - ✓ Postcards
 - ✓ Product packaging
 - ✓ Pull ups
 - ✓ Other promotional materials
- **Selection of tools and materials**
 - ✓ Stamping tools and materials
 - ✓ Stencilling tools and materials
- **Methods of printing**
 - ✓ Surface printing
 - ✓ Relief printing
 - ✓ 3D printing

Resources required for the learning outcome

Equipment	▪ Tables, Foam-board, Laminating machine, Perforating machine, Computer, Digital printers, Screen printer, Heat-presser, Squeegee, Printing Screen, Male Pump (offset), Female pump (offset), Toolbox.
Materials	▪ Paper, Coupons Dust mask, Safety shoes, Internet, router/Modem, Binding machine Workshop clothes, Printing film, Plain colour, Ink cartridges, Plain colour
Tools	▪ painting brushes, rollers, hammers, sponge, painting knives, stapling machine, rings
Facilitation techniques	▪ Individual work, Individualized, Group discussion
Formative assessment methods /(CAT)	Written based assessment, Performance based assessment

Learning outcome 2: Make a design		Learning hours: 8	
Indicative content			
• Design process ✓ Briefing ✓ Creation ✓ Feedback ✓ Finalization • Composition rules ✓ The rule of thirds ✓ Iconic ✓ Leading • Analog techniques of printing ✓ Screen printing ✓ Heating ✓ Embroidery			
Resources required for the learning outcome			
Equipment	▪ Printer, heat press, rag		
Materials	▪ Plastic, metal, paper, textile, resin, ceramic, polycarbonate, wallpaper, scissor, razor, wood, ceramic, Ink		
Tools	▪ Squeegee, etching, spatula, heat gun, brayer, clothes horse		
Facilitation techniques	▪ Demonstration and simulation, Individual and group work, Practical exercise		
Formative assessment methods /(CAT)	▪ Written assessment, Oral presentation, Performance assessment, Product based assessment, Project based assessment.		

Learning outcome 3: Finish the work	Learning hours: 22
Indicative content	

- **Preparation of surface**
 - ✓ Identification of printable surface
 - ✓ Techniques of surface preparation
 - ✓ Digital techniques of printing
 - ✚ Offset
 - ✚ Large format
- **Procedures for reproducing an artwork**
 - ✓ Composition
 - ✓ Reproduction
- **Finishing techniques**
 - ✓ Cutting
 - ✓ Folding
 - ✓ Binding
 - ✓ Perforating
 - ✓ Laminating

Resources required for the learning outcome

Equipment	▪ Printer, heat press, rag
Materials	▪ Plastic, metal, paper, textile, resin, ceramic, polycarbonate, wallpaper, scissor, razor, wood, ceramic
Tools	▪ Ink, squeegee, etching, spatula, heat gun, brayer, clothes horse
Facilitation techniques	▪ Demonstration, individual and group work, practical exercise
Formative assessment methods /(CAT)	▪ Written assessment, oral presentation, performance assessment, product based assessment, project based assessment

Integrated/Summative assessment

Integrated situation

KAYONZA Hotel is celebrating its 10 years in hotel operations. They need some promotional materials to use on celebration day. The manager of the hotel needs a printmaker to design and print business cards, on t-shirts, on awards and key holders for participants.

As competent printmaker, you are hired to perform the task.

Instructions:

- Make 4 designs of business card, award, t-shirt and key-holder
- Print on t-shirt, award, business cards and key holder
- Choose the technique to apply according to the surface
- The celebration theme must be well placed on the surface
- Inspect the prints for quality and pack them for delivery

All needed material, tools and equipment are available at the Hotel.

Duration:4 hours

Tools	- Rulers, pencil, eraser, scissor, razor blade
Equipment	- Computer, Scanner, designing software, embossing machine, Digital printer
Materials/ Consumables	- Papers, laminating machine, Packing materials, papers

Assessable outcomes	Assessment criteria (Based on performance criteria)	Indicator	Observation		Marks allocation
			Yes	No	
Learning outcome 1: PREPARE THE WORK (25%)	1.1. Items to be printed are properly identified according to their uses	T-shirt, award, business cards and key holders are printed on			8
	1.2. Tools and materials are adequately selected referring to the printing technique to be used	Appropriate printing tools are selected			1
		Appropriate printing materials are selected			2

		Appropriate printing equipment are selected			2
	1.3. Tools and materials are properly prepared depending on printing types	Items to be printed on are prepared			6
		Printing tool, material and equipment are prepared			6
Learning outcome 2: MAKE DESIGN (35%)	2.1. Drafts are properly made based on design process	The themes to print are designed			12
	2.2. The sample is effectively developed according to the composition rules	Rule of thirds is respected			3
		Rule of Iconic is respected			3
		Rule of Leading is respected			3
	2.3. The design is adequately finalized referring to analogue techniques of printing.	Appropriate finishing of design is done			9
Learning outcome 3: FINISH WORK (40%)	3.1. The surface is appropriately prepared referring to the printing techniques	Appropriate preparation of surface is done			10
	3.2. The artwork is properly reproduced based on printing techniques	The theme is reproduced on T-shirt, award, business card and key holder			20
	3.3. The work is appropriately finished according to the finishing techniques	Printed items are finished and packaged			10
Total marks		100			
Percentage Weightage		100%			
Minimum Passing line % (Aggregate): 70%					

List of abbreviations

1. **CAT:** Continuous Assessment Test
2. **IND:** Indicator
3. **RTB:** Rwanda Tvet Board
4. **TVET:** Technical Vocational Education and Training
5. **SHE:** Safety Health Environment

References

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Glossary

Activity: Activities include releases, events, and deployment plans that you develop, start, and complete with the product.

API: An interface that allows an application program that is written in a high-level language to use specific data or functions of the operating system or another program.

Application environment: A user-defined collection of resources that hosts an application. These application environments refer to environments that are created to be in the product.

Application process: A process that is associated with an application. Unlike a component or generic process, an application process is created from application-level steps.

Application: One or more computer programs or software components that provide a function in direct support of a specific business process or processes. See also application server.

Architecture: The internal structure of a computer system or a chip that determines its operational functionality and performance.

Artifact: A deployable item such as a file, image, database, configuration material, or anything else that is associated with a software project. By default, artifacts are stored in Code Station repository.

ASIC: Application Specific Integrated Circuit. A chip that is designed to fulfill a specific task in a computer system.

Cache: Small, fast memory close to the CPU that can hold a part of the data or instructions to be processed. The primary or level 1 cache are virtually always located on the same chip as the CPU and are divided in a cache for instructions and one for data. A secondary or level 2 cache is mostly located off-chip and holds both data and instructions. Caches are put into the system to hide the large latency that occurs when data have to be fetched from memory. By loading data and or instructions into the caches that are likely to be needed, this latency can be significantly reduced.

Capability computing: A type of large-scale computing in which one wants to accommodate very large and time

consuming computing tasks. This requires that parallel machines or clusters are managed with the highest priority for this type of computing possibly with the consequence that the computing resources in the system are not always used with the greatest efficiency.

Capacity computing: A type of large-scale computing in which one wants to use the system (cluster) with the highest possible throughput capacity using the machine resources as efficient as possible. This may have adverse effects on the performance of individual computing tasks while optimising the overall usage of the system.

Clock cycle: Fundamental time unit of a computer. Every operation executed by the computer takes at least one and possibly multiple cycles. Typically, the clock cycle is now in the order of one to a few nanoseconds.

Clock frequency: Reciprocal of the clock cycle: the number of cycles per second expressed in Hertz (Hz). Typical clock frequencies nowadays are 400 MHz--1 GHz.

Component process: A process defined for the deployment of components.

Component: A representation of deployable items and the user-defined processes that operate on them, usually by deploying them.

Control processor: The processor in a processor array machine that issues the instructions to be executed by all the processors in the processor array. Alternatively, the control processor may perform tasks in which the processors in the array are not involved, e.g., I/O operations or serial operations.

Deployment: The activities used to deliver a software project to a deployment target. Typically, you run deployments for each stage of your release lifecycle, ending with the production stage when the software becomes generally available.

Duration: The time a task takes to run. Duration is measured from the time a task starts until it is resolved. When you create some task types, you can estimate its expected duration. Duration is reported in minutes.

Environment: A collection of resources that identify the components that can be deployed by the parent application and the agents that do the work.

EPIC: Explicitly Parallel Instruction Computing. This term is coined by Intel for its IA-64 chips and the Instruction Set that is defined for them. EPIC can be seen as Very Large Instruction Word computing with a few enhancements. The gist of it is that no dynamic instruction scheduling is performed as is done in RISC processors but rather that instruction scheduling and speculative execution of code is determined beforehand in the compilation stage of a program. This simplifies the chip design while potentially many instructions can be executed in parallel.

Events: Release-related activities that are applied to releases and tracked with a calendar. You can use events to organize your releases and other time-dependent activities, such as holidays and blackouts.

Functional unit: Unit in a CPU that is responsible for the execution of a predefined function, e.g., the loading of data in the primary cache or executing a floating-point addition.

Initiative: An action to take for the change occurred.

Insights: A set of related features such as metric data dashboards, reports, and the application portfolio.

Instruction Set Architecture: The set of instructions that a CPU is designed to execute. The Instruction Set Architecture (ISA) represents the repertoire of instructions that the designers determined to be adequate for a certain CPU. Note that CPUs of different making may have the same ISA. For instance, the AMD processors (purposely) implement the Intel IA-32 ISA on a processor with a different structure.

Integration: Regular communication between IBM UrbanCode Velocity and external products and services. Communication with integrated products can be bidirectional.

Lifecycle: The phases in a release. A lifecycle is a template for the stages of work in a release.

Multithreading: A capability of a processor core to switch to another processing thread, i.e., a set of logically connected instructions that make up a (part of) a process. This capability is used when a process thread stalls, for instance because necessary data are not yet available. Switching to another

thread that has instructions that can be executed will yield a better processing utilization.

PCI bus: Bus on PC node, typically used for I/O, but also to connect nodes with a communication network. The bandwidth varies with the type from 110-480 MB/s. Newer upgraded versions PCI-X and PCI Express are (becoming) available presently.

Plugin: A separately installable software module that adds function to an existing program, application, or interface.

Register file: The set of registers in a CPU that are independent targets for the code to be executed possibly complemented with registers that hold constants like 0/1, registers for renaming intermediary results, and in some cases a separate register stack to hold function arguments and routine return addresses.

Resource: A user-defined construct that is based on the architectural model of IBM Urban Code Velocity. A resource represents a deployment target.

RISC: Reduced Instruction Set Computer. A CPU with its instruction set that is simpler in

comparison with the earlier Complex Instruction Set Computers (CISCs) ne cycle.

Role: A job function that identifies the tasks that a user can perform and the resources to which a user has access. A user can be assigned one or more roles.

Segment: A period of time in a deployment plan. Deployment plans can group tasks into segments to specify when tasks are run relative to each other.

Shared Memory (SM): Memory configuration of a computer in which all processors have direct access to all the memory in the system. Because of technological limitations on shared bandwidth generally not more than about 16 processors share a common memory.

Task: Represents a business-meaningful activity that has starting and ending points and a measurable duration. Durations are used to estimate deployment times. You add tasks to deployment plans. When you run a deployment, you complete the tasks in the plan

User: A representation of an account on the server. Users can be members of teams and groups. User can be created in IBM UrbanCode Velocity server or import users

from an external authentication realm, including an LDAP, Active Directory, or SSO provider.

Version: A representation of an IBM UrbanCode Deploy application snapshot.

Virtual Shared Memory: The emulation of a shared memory system on a distributed memory machine by a software layer.