

NATIONAL EXAMINATIONS COUNCIL  
(NECO)

BASIC EDUCATION CERTIFICATE  
EXAMINATION  
(BECE)

**SYLLABUS**

FOR CANDIDATES IN UPPER BASIC  
(JSS1-3) IN NIGERIA UNDER THE  
UNIVERSAL BASIC EDUCATION (UBE)  
PROGRAMME.

***BECE***

***SECOND EDITION***

## **BASIC TECHNOLOGY**

### **JSS THREE**

#### **1. PROCESSING OF METALS**

##### **a. Timber:**

- i. Key concepts in timber processing (growth, felling, conversion and seasoning)
- ii. Properties of good timbers
- iii. Common timber defects: twist, bowing, cupping, etc.
- iv. Treatment and timber preservation methods
- v. Importance of timber treatment

##### **b. Metal:**

- i. Metal processing methods (smelting, casting, etc)
- ii. Advantages and disadvantages of different processing methods
- iii. Metal alloys: examples, properties and uses

##### **c. Clay, ceramics and glass**

- i. Method of processing: clay, ceramics and glass materials
- ii. Advantages and disadvantages of the different processing methods
- iii. Production and uses of clay, ceramic and glass.

##### **d. Plastics and Rubber:**

- i. Examples of rubber and plastic products
- ii. Methods of processing plastics and rubber
- iii. Advantages and disadvantages of the different processing methods
- iv. Uses of plastics and rubber

#### **2. ISOMETRIC DRAWING**

- a. Examples of isometric drawing
- b. Isometric drawing of simple shape blocks without curves

#### **3. OBLIQUE DRAWING**

- a) Examples of oblique drawings
- b) Simple oblique drawings

#### **4. ORTHOGRAPHIC PROJECTION**

- a. Meaning
- b. Components:

- i. Principal planes
- ii. Angles of projection
- iii. Principal views
- c. Placing principal views in the quadrants
- d. Dimensioning techniques

## **5. ONE POINT PERSPECTIVE DRAWING**

- a. One point perspective drawing:
  - I. Meaning
  - II. Examples
  - III. Principles
- b. One point perspective drawing practice

## **6. SCALES AND SCALE DRAWING**

- a. Measuring and comparing given size
- b. Scale drawing:
  - I. Full size, 1:1
  - II. Scale reduction, e.g., 1:5, 1:10, 1:20, etc
  - III. Scale enlargement, e.g., 2:1, 3:1, etc.

## **7. DRAWING OF PLANS AND BLUE-PRINTS**

- a. Common symbols used in plans, blue-prints and their interpretations.
- b. Identification of building components (fittings, sanitary wares e.g., sink, bath, showers, soak-away, septic tank, socket, windows, doors etc. on building plans

## **8. WOOD WORK PROJECTS**

Production of various objects using simple wood work machines and tools, e.g., wooden tables, stools, boxes, photo frames, tee-square, pot stand, book-rack, book-stand, shelf, etc.

## **9. METAL WORK PROJECTS**

- a. Production of bottle openers
- b. Production of trash bins/cans, coal pots, etc.
- c. Production of metal stools, chairs and benches

## **10. SOLDERING AND BRAZING**

- a. Meaning of soldering and brazing
- b. Soldering and brazing tools and materials
- c. Operations, types and uses

## **11.MACHINES MOTION**

- a. Linear motion
  - I. Lever arrangement to produce linear motion
  - II. Use of slides and slots in mechanical systems
- b. Rotary motion:
  - I. Oneway, e.g., shaft or running car
  - II. Reversible rotary motion, e.g., load, drum of cranes, brakes, clutches, etc.
- c. Principles of application
- d. Conversion of rotary motion to linear motion:
  - I. Rack and pinion, screws crank and slider
  - II. Connecting rod and piston