



# TECHNICAL UNIVERSITY OF MOMBASA

## *Faculty of Engineering & Technology*

DEPARTMENT OF MECHANICAL & AUTOMOTIVE ENGINEERING

UNIVERSITY EXAMINATIONS FOR DEGREE IN  
BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

### **EMG 2103: WORKSHOP PROCESSES AND PRACTICE I**

SUPPLEMENTARY/SPECIAL EXAMINATIONS

**SERIES:** MARCH 2014

**TIME:** 2 HOURS

#### **INSTRUCTIONS:**

- This paper consists of **FIVE** questions.
- Answer Question **ONE** and any other **TWO** questions.

***This paper consists of Three printed pages***

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#### **QUESTION 1 (Compulsory)**

- a) i) Draw a labeled diagram of a micrometer screw gauge.  
ii) State the correct use and care of micrometers. **(8 marks)**
- b) The following are possible faults in riveting, state their causes:  
i) Flanged head  
ii) Centre swell  
iii) Bent shank **(3 marks)**
- c) i) State any **THREE** uses of chisels and outline the procedure in chiseling.  
ii) State how to avoid accidents while using handtools. **(12 marks)**
- d) i) Sketch a skeleton vernier caliper whose reading is 20.24mm.  
ii) State any **FOUR** uses of dial test indicators

iii) State **TWO** uses of spirit level.

(9 marks)

## QUESTION 2

- a) i) Sketch a hacksaw and name the parts.  
ii) Outline the precautions in the use of hacksaw.

(9 marks)

- b) I) Sketch a label a file.  
II) Explain the following terms as applied to files  
i) Cut  
ii) Grade  
III) Outline the following filing processes  
i) Cross filing  
ii) Draw filing

(11 marks)

## QUESTION 3

- a) i) Using a sketch explain the spacing of rivets in a double riveted lap joint.  
ii) Outline the steps in hand riveting  
iii) Outline **TWO** ways of removing unwanted rivets.

- b) i) Sketch and label a copper bit soldering iron.  
ii) Outline the procedure of soldering.

(12 marks)

## QUESTION 4

- a) i) Explain **TWO** reasons for marking out.  
ii) Using sketches explain **FOUR** types of datums.

(10 marks)

- b) State the uses of the following marking out tools:  
i) Centre punch  
ii) Engineers square  
iii) Combination set

(7 marks)

- c) Sketch a labeled diagram of a surface gauge (scribing block).

(3 marks)

## QUESTION 5

- a) i) Outline the procedure of cutting threads on bar.  
ii) Outline any **THREE** ways of removing broken taps.

(8 marks)

- b) i) Outline any factors to consider in the design of a brazed joint.  
ii) State the function of fluxes during brazing and how they are removed after brazing. (12 marks)

