



# TECHNICAL UNIVERSITY OF MOMBASA

## DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING

SECOND YEAR FIRST SEMESTER UNIVERSITY EXAMINATION FOR THE DEGREE  
IN BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING (BSEE 1)

### EMG 2204 COMPUTER AIDED DRAWING

#### END OF SEMESTER EXAMINATIONS

**SERIES:** DECEMBER, 2013

**TIME:** 2 HOURS

#### INSTRUCTION TO CANDIDATES

1. You should have the following for this examination:-
    - Answer Booklet
    - A computer with installed AutoCAD programme
    - Drawing Instruments
  2. This paper consists of **FIVE** questions.
  3. Answer Question **ONE** is **COMPULSORY** and any other **TWO** Questions.
  4. Maximum marks for each part of Question are as shown.
  5. This paper consists of **SIX** printed pages.
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#### Question ONE (Compulsory)

- (a) (i) State any **FOUR** applications of CAD in various fields of Engineering.
- (ii) With the aid of sketches, explain the functions of the following modify commands:
- (I) Fillet
  - (II) Chamfer
  - (III) Trim
- (iii) Using sketches explain the following commands in 3D solids:

- (I) Extrude command
- (II) Revolve command
- (III) Subtract command

**(10 marks)**

(b) (i) Figure 1 shows a machine template draw the view using AutoCAD 2D options (no dimensions required). **(10 marks)**

(ii) Figure 2 shows orthographic views of a component. Use AutoCAD 3D options to generate a 3D model representation. **(10 marks)**

### **Question TWO**

Figure 3 shows the exploded parts of a safety valve operating linkage, for the component using AutoCAD 2D options perform the following operations:

- (i) Construct a Front Elevation of the fully assembled part in the direction of arrow B and Section the FE about a line that passes through the centre of the pin and the web (X-X).
- (ii) Construct a plan view in the direction of arrow A showing all hidden details.

Note the top portion of the pin is threaded for 15mm and a nut should be used to faster it to the assembly.

**(20 marks)**

### **Question THREE**

Using AutoCAD 3D options produce the isometric projection of the component shown in Figure 4 (No dimensions required). **(20 marks)**

### **Question FOUR**

Figure 5 shows **TWO** views of a component. Construct the 3D model of the views. **(20 marks)**

### **Question FIVE**

Using AutoCAD 2D options generate the orthographic views of the component shown in Figure 6 using first angle projection note: A – A is a sectioning plane and x is the direction of the FE (show atleast 3 major dimensions in each view). **(20 marks)**