

## **GGE 4101 Engineering Surveying II practical**

**In Group of six**

### **Exercise I**

- (a) Select an area of 100m × 100m within Dedan Kimathi University, mark the four corners, then subdivide that area into squares whereby the dimension of each square is 10m by 10m, then using a leveling machine, determine the spot heights of each corner of the square assuming that the first corner of your study area is 5m above the required depth. Compute the volume of earthworks to be excavated using

- (i) Square method.
- (ii) Triangle method

Assuming that the excavated materials will not be wasted but will be used for backfilling a depression in another site, determine the volume of earthworks to be used for embankment assuming that the excavated material has a shrinkage of 10%.

### **Materials and Instruments required**

- (i) Level (Dumpy level) and its accessories
- (ii) Measuring tape
- (iii) Pegs

### **Exercise II**

- (a) Carry out a topographical surveying of football pitch including slanting sides in Dedan Kimathi University of Technology. Use AutoCAD generate contours at an interval of 0.5m, then determine

- (i) The area enclosed by each contour and finally compute the volume of earthworks between the lowest contour and the highest contour
- (ii) Also generate digital elevation model of the area.

### **Materials and instruments required**

- (i) Total station
- (ii) Reflector
- (iii) AutoCAD software
- (iv) ArcGIS

**NB: To all students:**

Attending practicals is mandatory, and a report of the same should be submitted for marking to the lecturer.