



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY
KISII LEARNING CENTRE
UNIVERSITY EXAMINATIONS
AUGUST 2013
COURSE CODE: IIS 5216
COURSE TITLE: SYSTEM DYNAMICS MODELLING**

DURATION 3HOURS

INSTRUCTIONS:

- 1. This Examination paper has a total of FIVE questions.**
- 2. Answer *Question one* and any other TWO questions**
- 3. Write the answers on booklet provided.**

QUESTION ONE 20 marks

- a.) Briefly explain feedback systems as found in system dynamics modeling 6marks
- b.) i.) List and explain the methodology of system dynamics modeling 8 marks
- ii.) What is your understanding of a model 1marks
- c.) Simulation is very key to modeling, list and explain applications of simulation 2 mars
- d.) Why use a model and not the real system 3 marks

QUESTION TWO 20 MARKS

- a.) Giving examples briefly describe modeling languages 7 Marks
- b.) List and explain the three categories of simulation languages 3 marks
- c.) Compare and contrast modeling and simulation languages 10 marks

QUESTION THREE 20 MARKS

- a.) Explain the following as used in system dynamics modeling 10 marks
 - i.) Activity
 - ii.) Process
 - iii.) Object
 - iv.) Attribute
 - v.) State variable
- b.) Discuss the various simulation technologies in terms of time and state 10 marks

QUESTION FOUR 20marks

Assuming you are a system architect and using any known technique of system dynamics draw a model of a given process clearly stating the stages 20marks

QUESTION FIVE 20marks

- a.) What are the challenges experienced by system architects in modeling systems 10 marks
- b.) What are the current trends in system dynamics 10 marks