



## UNIVERSITY OF NAIROBI

### DEPARTMENT OF ENVIRONMENTAL AND BIOSYSTEMS ENGINEERING

#### 5<sup>TH</sup> YEAR CLASS

**FEB 511: AGRICULTURAL MECHANIZATION**

**2012/2013**

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**Course Instructor:** Eng. Dr. A.N. Gitau

**Duration:** Tuesday; 9.00 a.m. – Noon

**Office:** Kabete – Engineering Building

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**Office Hours:** Preferably immediately before or after lecture.

*Students are encouraged to make use of office hours*

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#### **Course Objectives:**

Expose the students' to:

- Contribution of mechanization to industrialization
- Challenges, advances and dynamism of our engineering profession
- Methods of choice and selection of power sources
- National development policy and the country's' direction towards mechanization
- Cost optimization in the mechanization process.

#### **Course Outline**

1. Historical Perspective of agricultural mechanization and industrialization
  - Problems faced and advances made by agricultural engineers.
2. Choice and basis of selection of power sources for the mechanization process.
  - National policy to promote development
  - Assignment 1

- CAT – 1 (4<sup>th</sup> – 6<sup>th</sup> wk)
3. Organization form of the industry and firms
    - Role of the private sector and government on agricultural development.
    - Machinery testing
    - Assignment 2
  4. Cost theory and optimum farm size
    - Cost determination
    - Combine harvesters
  5. Information systems for agricultural firm management
    - Case studies for different farming systems – lecturer and invited guests experiences
    - CAT - 2 (9<sup>th</sup> – 12<sup>th</sup> wk)
  6. Mechanization project planning
    - Term paper and presentation.

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### Grading System

Assignments	5 %
2 – CATs	15 %
Term paper	10 %
Final Exam	70 %

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**Note:** You will be required to think of a simple machine for; land preparation, post – harvest processing and handling, irrigation systems etc. Then, form a group of about 5 students, develop your modification (contribution) to it and make a power point presentation of the term paper by the 10<sup>th</sup> week.

### Reference:

1. Brian, B. (1989). Farm Machinery. 3<sup>rd</sup> Edition.
2. Donnel, H. (1983). Farm power and machinery management. 8<sup>th</sup> Edition.
3. Kepner, R. A. *et al.* (1987). Principles of farm machinery.
4. Mechanization in Africa: 2008. Time for action.
5. Internet exploration.
6. Any other relevant sources.

*Wishing you a fruitful interaction in your final year*

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