**AEN 2201 FARM STRUCTURES**

Lecturers Ms. Stella Sendagi (B.Sc. Agric. Eng, M.Sc. Agric. Eng)

Mr. Peter Tumutegyereize (B.Sc. Agric. Eng)

**Course Type**: **CORE (B.Sc. Agric. Eng)**

**Course Credits (CU)**: **3 CU i.e. 45 Contact Hours per semester**

**Course Duration**: **15 weeks (45 hours) i.e. 30 LH, 30 PH**

**Course Description:**

The course includes basic principles and concepts of designing, building and management of Agricultural/ Farm buildings and structures used for animal housing, effective storage of crops and equipments and family living. It also includes a range of building materials and types of construction, from traditional indigenous to industrially produced, as applied to farm structures. The course focuses mostly on Farm Structures for Tropical Climates with emphasis on structures for small to medium scale farms and to some extent, village scale Agriculture infrastructure. The acquired knowledge and skill should enable the student to produce, in cooperation with the farmer, specifications for functional building designs that provide good environment and durable construction, contributing to efficient and economically sound farm operations.

**Course objectives**

* Select and quantify appropriate building materials for construction of farm structures
* Be able to advise on a suitable mix ratio of concrete
* Be able to recommend an appropriate farm structure for a particular enterprise

**REFERENCES:**

* Jamesh Whitaker. 1979. Agricultural buildings and structures. Reston, Virginia
* Farm structures in tropical climates: Fao/Sida cooperative programme. Rural structures in east and south-east Africa food and agriculture organization of the United Nations.Rome, 1988

**COURSE OUTLINE:**

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| Topic | content | Method of instruction | Tools/equipment needed |
| **Lecture 1 Introduction** | Developments in farm structures | 2hour interactive lecture with visual aids | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts |
| Lecture 2  Principles of Farm Structures | characteristics of buildings and economic feasibility | 2hour interactive lecture with visual aids | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts |
| Lecture 3  Building Materials | Wood as a building material | * 2hour interactive lecture with visual aids * 3 hours of study trip to timber stores | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts   * Transport (Bus) |
| Lecture 4  Building Materials | concrete, roofing materials, earth | * 2hour interactive lecture with visual aids * 3 hours of tutorials on concrete ratios plus an assignment | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts |
| Lecture 5  Elements of Construction | Beams and columns Climate and Environment Control | * 2hour interactive lecture with visual aids * 3 hours of study trip to a construction site | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts   * Transport (Bus) |
| Lecture 6  Animal Housing | Cattle units | * 2hour interactive lecture with visual aids | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts |
| Lecture 7  Animal Housing | Cattle units and Piggery units | * 2hour interactive lecture with visual aids * 3 hours of study trip to zero grazing units | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts   * Transport (Bus) |
| Lecture 8  Animal Housing | Piggery units cont. | * 2hour interactive lecture with visual aids * 3 hours of study trip to a piggery units | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts   * Transport (Bus) |
| Lecture 9 | **Test** | **1.5 hours** | papers, printer, |
| Lecture 10  Animal Housing | Poultry-chicken housings | * 2hour interactive lecture with visual aids * 3 hours of study trip to poultry units | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts   * Transport (Bus) |
| Lecture 11  Storage structures | Crop Handling Conditioning and storage | * 2hour interactive lecture with visual aids | * Laptop, LCD, white board and markers or BB and chalk, papers,   printer, handouts |
| Lecture 12  Storage structures | Crop Handling Conditioning and storage | * 2hour interactive lecture with visual aids * 3 hours of study trip to storage facilities | * Laptop, LCD, white board and markers or BB and chalk, papers, printer, handouts * Transport (Bus) |
| Lecture 13 | **Test 2** | **1.5 hours** | * Printer, handouts |
| Lecture 14 Sundry farm buildings | Greenhouses, Farm dwellings and External facilities | * 2hour interactive lecture with visual aids * 3 hours of study trip to greenhouses | * Laptop, LCD, white board and markers or BB and chalk, papers, printer, handouts * Transport (Bus) |
| Lecture 15  Rural Water supply and sanitation structures | Pump houses, pit latrines | * 2hour interactive lecture with visual aids * 3 hours of study trip to water house | * Laptop, LCD, white board and markers or BB and chalk, papers, printer, handouts * Transport (Bus) |

**Course Assessment:**

* Two tests: 20%
* Assignment 10%
* Reports from study trips 10%
* Final Examination: 60%

**SUMMARY OF TIME NEEDED**

Interactive lectures 30 hrs

Tutorial hours 03 hrs

Tests 03hrs

Study trips 24hours