UNIVERSITY OF NAIROBI

DEPARTMENT OF ENVIRONMENTAL AND BIOSYSTEMS ENGINEERING

5TH YEAR CLASS

FEB 522: IRRIGATION AND DRAINAGE ENGINEERING

Module 1 Review of irrigation principles and practices

- Rationale for irrigation
- Irrigation systems
- Irrigation water requirements
- Irrigation scheduling

Module 2 Feasibility of irrigation and drainage projects

- Technical feasibility
- Economic/financial feasibility
- Environmental aspects
- Social-cultural aspects

Module 3 Irrigation system layout

- Factors influencing layout
- Alternative layout
- Evaluation of alternative layouts

Module 4 Design of on-farm drip irrigation system

- Layout and components
- Size selection
- Performance evaluation
- Design specifications

Module 5 Design of on-farm sprinkler irrigation system

- Layout and components
- Size selection
- Performance evaluation
- Design specifications

Module 6 Design of on-farm surface irrigation system

- Layout and components
- Size selection
- Performance evaluation
- Design specifications

Module 7 Design of a canal system

- Layout and components
- Design considerations
- Canal sizing
- Water control and measuring structure

Module 8 Design of a pipeline

- Layout and components
- Design considerations
- Pipe sizing and performance assessment

Module 9 Intake structure design

- Layout and component
- Design considerations
- Component design

Module 10 Cause and effects of excess water

- Sources of excess water
- Quantifying excess water
- Removal of excess water

Module 11 Cause and effects of excess salts

- Sources of excess salts
- Quantifying excess salts
- Removal of excess salts

Module 12 Assessing impacts of irrigation and drainage projects

- Environmental, social, economic impacts
- Strategies for reducing negative impacts and enhancing positive impacts

Module 13 Operation and maintenance of irrigation and drainage projects

- Management of irrigation and drainage systems
- Maintenance of irrigation and drainage systems
- Performance assessment of irrigation and drainage systems