[A-3]COURSE SYLLABUS

1. Course Description (Approximately 100 words)

Irrigation and Drainage is the course that introduces the students to the significant of Irrigation and Drainage in relation to design and construction of irrigation and drainage practices and management. Also, it involves water relation in soils, determination of soil moisture, soil suction, Soil characteristics curve and water movement in the soil. Further more, the course will involve the study of Darcy's law, Poiseuilles law, Laplace equation, Laboratory and field methods of determining hydraulic conductivity, infiltration determination, field capacity, Bulk Density, Permanent Wilting Point, Surface tension, Evaporation, Evapotranspiration and its determination.

2. Course Goals and Objectives (Approximately 100 words)

The objectives of this course include the following;

1. To expose the importance of irrigation and drainage practices and management to students.
2. To train the students on how to design and install irrigation equipment on the field and also to train the students on how to design and install drainage system where it is required.
3. To provide student with knowledge required on how to determine evapotranspiration i.e. crop water requirement in any locality for efficient irrigation.
4. To impact knowledge on how to determine soil moisture content, field capacity, bulk density, permanent wilting point, infiltration and hydraulic conductivity.

3. Textbook (Title, Author, Publisher, Year of Publication, etc.)

Larry E.J.(1988). Principles of Farm Irrigation System Design. Published by kriejer Publishing Company, Malabor, Florida, 10-27p.

4. Reference

Irrigation and Drainage EngineeringNov 19, 2015 by Peter Waller and Muluneh Yitayew
Irrigation Engineering and Hydraulic StructuresJan 2006 by Santosh Kumar Garg

5. Course Requirements and Grades

CAT 30%
EXAM 70%

6. Course Calendar

Week	Main Content
1	Definition of Irrigation, Uses of Irrigation andTypes of Irrigation systems
2	Plant-Soil-Atmosphere relationship: Texture, Structure, Profile and Depth Sa
3	Plant-Soil-Atmosphere relationship:Drainability, Topography, Erodibility ,Clin
4	Soil Water: Determination of Infiltration rate of soil, Field capacity Bulk densi
5	Soil Water:Saturated and unsaturated flows, Laboratory and field methods o
6	Factors influencing flow of water in the soil: Isotropic and anisotropic soils
7	Factors influencing flow of water in the soil :Dupuit and Forcheimer assumpt
8	Steady and Unsteady flow with and without recharge
9	Steady and Unsteady flow with and without recharge
10	Permeameter: Constant Head permeameter, Falling Head permeameter
11	Definition of Drainage and its uses
12	Drainage problems, Sources of excess water, Drainage methods
13	Revision
14	FINAL EXAMINATION