[A-3]COURSE SYLLABUS

1. Course Description (Approximately 100 words)

Provide students with the fundamental knowledge needed to successfully practice the profession of agricultural and biological engineering in the area of heat and mass transfer. Train students to design, test, and analyze systems and processes that involve transport phenomena.

2. Course Goals and Objectives (Approximately 100 words)

1. Provide students with the fundamental knowledge needed to successfully practice the profession of agricultural and biological engineering in the area of heat and mass transfer.
2. Train students to design, test, and analyze systems and processes that involve transport phenomena.
3. Train students to formulate and solve heat and mass transfer problems and to use modern computational and experimental equipment.

Upon successful completion of this course, the student will be capable of analyzing heat and mass transfer processes and making design calculations for many agricultural and biological engineering applications.

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

Cengel, Y.A., Heat Transfer , A Practical Approach, 3rd Ed. McGraw-Hill. N.Y. 2006.

4. Reference

Cengel, Y.A., Heat Transfer , A Practical Approach, 3rd Ed. McGraw-Hill. N.Y. 2006.

5. Course Requirements and Grades

CAT 20%
ASSIGNMENTS 10%
EXAM 70%

6. Course Calendar

Week	Main Content
1	Convective Mass Transfer:Introduction,Convective Mass Transfer Coefficien
2	Transfer into a phase whose motion is due to Natural Convection;Analysis a
3	INTRODUCTION TO MASS TRANSFER:Properties of Mixtures;Concentrati
4	Diffusion flux:Fick's law,elation among molar fluxes,Calculations,Diffusivity ir
5	Psuedo steady state diffusion through a stagnant film:Equimolar counter diff
6	MID-TERM EXAMINATION
7	EVAPORATION:Purpose of Evaporation,Processing Factors,TYPES OF EV
8	Heat and Material Balances for Evaporators:Heat-Transfer Area in Single-Ef
9	DRYING:INTRODUCTION;PHYSICAL MECHANISM OF DRYING;CLASSIF
10	DRYING EQUIPMENT:Tray Dryer;Pan Dryer;Agitated Vacuum Dryer;Contin
11	CONTINUOUS: DRYING EQUIPMENT:Tray Dryer;Pan Dryer;Agitated Vacu
12	Fluidised Bed Dryer:Screen Conveyor Dryers;
13	Revision
14	EXAMINATION