

Department of Agricultural Process Engineering

CAF- APE 475

Seed Process Engineering 2 + 1 = 3

Seed processing industry - status and prospectus. Unit seed processing operations, Study of physical characteristics of seed for separation. Seed processing machineries. Planning and layout of seed processing plant. Seed cleaning, grading and separation machineries. Seed treatments, packaging and storage. Seed Testing. Seed Standards and seed certification. Seed marketing and distribution.

Practical

Determination of seed moisture content. Study of pre-cleaners. Study of air screen cleaner-cum-grader. Study of debearder. Study of indented cylinder separator. Study of specific gravity separator. Study of spiral separator. Study of seed treater. Study of seed bagging and labeling. Seed sample testing (physical purity and germination.). Study of bucket elevator. Study of cotton delinting machinery. Estimation of processing cost, Visit to seed processing plant /Ware house, Study of seed storage. Process flow diagram for processing of different grain crops.

CAF- APE 476

Process Engineering of Horticultural Crops 2 + 1 = 3

Composition and Nutritional Value of Horticultural Crops. Physiological development and maturity, compositional changes, physiological break down and control measures. Product maturation and maturity indices. Preparation of Fruits and Vegetables for fresh market. Post harvest handling operations. Cooling of horticultural commodities- need, changes, methods. Packages - requirement and economic considerations. Low temperatures and physiological disorders. Quality - components, factors influencing quality, evaluation and standards for fresh fruits and vegetables. Storage atmosphere – CO₂, Ethylene, microbial growth. Modified atmosphere during transport and storage. Cold storages and controlled atmosphere storages. Storage deterioration – Biological and environmental factors.

Practical

Study of maturing indices. Study of respiration quotient. Study of pre cooling of fruits and vegetables. Study of blanching of Vegetables. Study of wax coating of fruits. Study on use of chemicals for ripening and enhancing shelf life of fruits and vegetables. Study of storage systems. Study on packaging of fruits and vegetables. Determination of mechanical damage during handling and transport of fresh fruits and vegetables. Studies on chilling injury and physiological disorders. Visit to commercial pack house. Visit to commercial cold storage units.